REPORTS

REPORT

OF

THE COMMITTEE ON TRAINING OF CIVIL AIR PILOTS

1953

PRINTED IN INDIA BY THE MANAGER GOVT. OF INDIA PRESS, NEW DELHI
AND PUBLISHED BY THE MANAGER OF PUBLICATIONS, DELHI, 1953

COMMITTEE ON TRAINING OF CIVIL AIR PILOTS

(1) Shri M. A. Master, Chairman.

Members

(2) Director General of Civil Aviation or his Representative.

From 8th January 1953, Shri T. P. Bhalla or his Representative.

(3) A Representative from Air Headquarters—Group Capt. H. N. Chatterjee.

(4) Rai Bajrang Bahadur Singh, Raja of Bhadri.

(5) Shri K. K. Roy, Managing Director, Airways (India) Ltd.

(6) W/Cdr. W. H. Burbury, Airline Manager, Air Services of India Ltd.

(7) Capt. S. Bujakowski, Director, Himalayan Aviation Limited.

(8) Professor C. N. Vakil, Bombay University, Bombay.

(9) Shri G. S. Subramaniam, Deputy Director, Training and Licensing, Member-Secretary.

सत्यमेव जयते

GLOSSARY OF ABBREVIATIONS

A. C.	Aircraft
A. R. B.	Air Registration Board.
A. S. I.	Air Services of India Ltd.
A. S. T.	Air Service Training Ltd., Hamble.
A. T. L. B.	Air Transport Licencing Board.
B. E. A.	British European Airways Ltd.
B. O. A. C.	British Overseas Airways Corporation.
C of A.	Certificate of Airworthiness.
C. A. A.	Civil Aeronautics Administration.
C. A. B.	Civil Aeronautics Board.
C. A. T. C.	Civil Aviation Training Centre.
C. G. E.	Chief Ground Engineer.
C. P. I.	Chief Pilot Instructor.
D. C. 3	Dakota Type 3 Aircraft.
D. C. 4	Douglas Curtess Type 4 Aircraft.
D. G. C. A.	Director General of Civil Aviation.
D. G. P. T.	Director General, Posts and Telegraphs.
G. E.	Ground Engineer.
H. A. L.	Hindustan Aircraft Ltd.
H. P. F. C.	Hind Provincial Flying Club.
H. T. 2	Hindustan Trainer Aircraft (Type).
I. C. A. O.	International Civil Aviation Organization.
I. F. R.	Instrument Flight Rules.
I. G. A.	Indian Gliding Association.
I. L. S.	Instrument Landing System.
I. N. A.	Indian National Airways.
L.-5	Sentinel L-5 Type Aircraft.
M. P. H.	Miles Per Hour
N. C. C.	National Cadet Corps
N. I. F. C.	Northern India Flying Club.
P. G. T.	Pilots Ground Training.
P. H.	Per Hour.
P. I.	Pilot Instructor.

TABLE OF CONTENTS

PART I

CHAPTER I

Introductory

Paragraphs

Appointment of Committee and terms of reference. . . . . . 1—2
Issue of a Press Note on the formation of the Committee . . . . 2—3
Preliminary meeting and issue of Questionnaire . . . . . . 4—6
Response to the Questionnaire . . . . 7—8
Position regarding training in civil flying and State assistance in foreign countries 9
Information about training of pilots in other countries 10
Programme of Enquiry 11
Visits to Training and connected Institutions Examination of witnesses . 12
Informal talk with Shri Govind Vallabh Pant, Chief Minister of the Uttar Pradesh 13
Meeting with the Minister of Communications 14
Visits to Flying Clubs and other Institutions (Continued) . . . . 15—16
The Governor of Madras receives the Members 17
Visits to Institutions and examination of witnesses (continued) . . 18
Conversation with trainees at Flying Clubs 19
Members meet Shri Morarji Desai, Chief Minister of the Bombay State . 20
Informal talks with Shri J. R. D. Tata 21
Discussions within the Committee . . . . 24—25
Concluding meetings and signing of the report 26

सत्यमेव जयते

CHAPTER II

Flying Club Movement in India

Beginnings of demand for training facilities . . . . 27—28
First reference to Aviation Training 29
Place of Training in India's Air Policy 30
Assembly asks Government to declare its Training policy 31
Government willing to foster the training of Indians as pilots . . 32—34
Government announces the policy for the formation of Light Aeroplane Clubs . . . . 35—36
Financial assistance to Clubs 37
Flying Clubs lay foundation of civil flying 38
Development of the Flying Club Movement 39
Progressive increase in the number of flying clubs . . . . . 40—53
Special activities of the Clubs . . . . 54—55
Flying Clubs in the pre-war period 56
Flying Clubs during World War II 57
Post-war expansion of Flying Clubs . . . . 58—60

Paragraphs

Financial assistance given to flying clubs—

Financial help to the Flying Clubs in the United Kingdom . . . . 61—62
Other forms of help in the United Kingdom . . . . 63—64

Subsidies given to flying clubs in India—

Sources of subsidy 65
Subsidy from the Central Government . . . . 66—67
New Policy of liberal help from the Centre 68
Subsidy agreement—extent of control 69
Subsidy from the State Government 70
Policy of subsidising the clubs should continue 71
Cost of flying per hour . . . . 72—74
Ground Instruction and flying training . . . . 75—76
Flying Instructors 77
Joy Rides 78
Exemption of private owners' aircraft from landing and hangaring charges 79
An objectionable feature of the subsidized training in civil flying 80
Management and control of clubs . . . . 81—85
The future of the flying clubs should be assured . . . . . . 86—87

CHAPTER III

Civil Aviation Training Centre Allahabad

Place of Civil Aviation Training Centre in Post-war Plan 89
Object of the Flying School 90
Original programme of training to be given at the flying School . . 91
Pre-entry Training 92
Flying School 93
Conversion training 94
Growing demand for qualified pilots . . . . 95—96
Programme actually executed 97
Justification for the continuance of the Flying School 98
'B' Licences issued for less than 135 solo hours . . . . . . 99—102
A legitimate causes of complaint 103
Training at the C. A. T. C. 104
Accommodation and amenities 105
Conversion Courses—Policy of discrimination 106
New Policy for granting Dakota Endorsement . . . . . . 107—109
Protests against the new policy 110
Permanent endorsement not in accordance with law 111
Free conversion training for 'B' Licence holders. 112
Cost of training at the flying school—Collection of Data . . . 113
Estimates of Flying Cost 114
Considerations for determining the basis of cost 115
Insurance—an inevitable element of cost 116
Basis of the allocation of depreciation . . . . 117—118
Pay and Allowances of Officers 119

Paragraphs

Distribution of the cost of the P. G. T. Course 120
Spares and Stores 121
Cost of fuel and oil 122
Work-charged staff 123
Maintenance of buildings 124
General Administration 125
Total Cost 126
Cost of training of a pilot 127—128

CHAPTER IV

Legislation pertaining to the licensing of private and commercial Pilots

Safety—the prime consideration 130
Development in aircraft and technique of operations necessitate the acquisition of higher knowledge, experience and skill by pilots. 131
New Rules require greater knowledge and experience and more stringent flying tests for same privileges 132
Existing categories of licences 133—135
New categories of licences 136—140
Qualifications for existing and proposed new licences 141—142
Private Pilot's licence 143—144
Public Transport Flying 145—149
Directives recently issued—New Qualifications for a Co-pilot to fly at night 150—151
Pilot-in-Command Certificate 152—154

सत्यमेव जयते

CHAPTER V

Operaitonal Efficiency

Renewal of licences recognises the need for operational efficiency 155
Need for continuity of flying experience 156
Periodic instrument flying experience of practice essential 157
Existing legislation for operational efficiency 158
Proposed new rules render existing periodic checks unnecessary 159
Practice in the U. K. 160
Practice in the U. S. A. 161
The U. K. & U. S. A. laws do not impose such periodic checks 162
Proposals for refresher training of airline pilots 163
Training, practice and periodical checks for operating crew of aircraft flying on scheduled journeys 164—165
Conditions for avoidance of fatigue of aircrew 166—169
Deleterious affects of flying 170
Exhaustion under different kinds of flights 171
Factors that cause exhaustion 172
Recommendation for hours of work of aircrew 173

Paragraphs

CHAPTER VI

Policy of Recruitment and Training

New qualifications—basis of future training 174
Flying Clubs and Sport Flying 175
Sport flying makes little progress 176
Training of commercial pilots 177
New Qualifications require special training institutions 178
Capacity of industry to absorb new pilots 179
Few persons seek training for 'B' licences in pre-war period 180
Rush for 'B' pilot training in post-war years 181
Pilots required for replacement 182
Possibility of expansion in Air Transport Industry 183
Number of Pilots under the new merger policy 184
Limited number of pilots to be trained 185
How others recruit their commercial pilots 186
Recruitment of commercial pilot from the IAF views favourably . . 187
Policy and method of recruitment of ex-Air Force Pilots in U. K. . . 188
Air Vice-Marshal welcomes recruitment from Air Force . . . 189—190
Policy of recruitment from Air Force beneficial in the interests of all . 191
Post-war Plan has considered this recuitment policy as sound and practical . . . . 192—193
Need for special institutions for the training of commercial pilots . . 194
No restriction on clubs training commercial pilots at their own costs . 195—196

CHAPTER VII

Cost of training and responsibility of the State

Cost of training and responsibility of the State 197
What a trainee pays for his private pilot's licence 198
What a pilot will have to pay for obtaining his 'B' licence . . . 199—20
What a pupil pays at the C. A. T. C. up to Dakota conversion course . 201
State assistance is essential for civil flying 202
Subsidy given by the Central Government and the States for promoting civil flying 203
Conversion and Pilot-in-Command Certificate Training 204
Conversion training in the future 205
Fees to be paid for sport flying 206
Fees to be paid for the commercial pilot's licence with the endorsement of Dakota in the licence 207
Concessions in customs duty 208
Duty on aviation petrol 209
Landing and housing fees 210

CHAPTER VIII

Future role of the flying school at the Civil Aviation Training Centre

Flying School started to meet the post-war shortage of pilots . . 211
Permanent training institution the vital need of Air Transport Industry . . . . 212—213

Paragraphs

Flying School—a permanent centre of professional training . . . 214
Training to be given at the Flying School . . . . 215—216
Flying School : Training it should give . . . . . . 217—218
Method of selection of trainees . . . . 219—220
Standardisation of training aircraft and equipment 221
Financial implications of running the school under our above proposals . . . . 222—223—224
Fees payable for future training . . . . 225—226

CHAPTER IX

Flying activities of the Air-wing of the National Cadet Corps

What National Cadet Corps is? . . . . 227—228
Progress of the N. C. C. Movement 229
Future expansion . . . . 230—231
N. C. C. Cadets—Assurance of flying work to Clubs 232
Who pays the cost of flying training of the N. C. C. Cadets . . . 233—234
Doubling the strength of the Air Squadrons—Responsibility of financing its cost 235
Demand from College Students—Real essence of sport flying—sustaining power of Flying Clubs—It must be met 236

CHAPTER X

The Future of the Flying Clubs

The Future of the Flying Clubs 237
Flying Clubs—Scope for improvement 238
Problem facing the flying clubs 239
Need for regular flow of work for flying training 240
How the main flying work will disappear hereafter 241
Flying activities of the cadets of the NCC—Basis of our scheme . . 242—244
Present high fees discourages sport flying . . . . . . 245—246
Standard flying cost 247
How the income and expenditure of the clubs could be balanced . . 248—254
Future management and control 255
Curriculum for training of private pilots 256
Standardisation of training aircraft and equipment 257
Scales of pay for flying instructors and other staff employed in the training institutions 258
Joy rides 259
Selection of pupils for admission to the Clubs 260

CHAPTER XI

Problem of Unemployment

Extent of unemployment—possibilities of new openings . . . 261—262
Removal of a vital difficulty essential for employment . . . . 263—264
New openings with the future Indianisation of the Pilot's Service . . 65
Possibility of finding opening in the Air Force 266
New avenue of employment 267

Paragraphs

CHAPTER XII

Civil Air Board

Safety in air—a matter of national concern 271
All powers vested in one authority 272
Need for an independent controlling body 273
How questions of operational efficiency handled in the U. K. and in India 274
Further justification for Civil Air Board 275
Supervision and control of Civil Air Board over flying clubs . . 276—277
Composition and functions of the Civil Air Board . . . 278—279

CHAPTER XIII

Miscellaneous Matters

Standardisation of scales of pay of Pilots, Check Pilots and Conversion Course Instructors 280
Qualifications for check pilots and Instructors for Conversion Course and their periodical checks 281—283
Liability of airline pilots to serve under the State . . . . . 284—285
The Aero Club of India 286
The Aero Club in India—The Aero Club in Great Britain . . . 287
What the Aero Club Needs 288
Training for special types of aircraft and special types of work . . 289—290
Crop-dusting and aerial spraying 291
Training for Aerial Survey 292

CHAPTER XIV

Development of Gliding in India

How gliding develops air mindedness . . . . 293—295
Indian Gliding Association starts gliding movement in India . . . 296—297
The Delhi Gliding Club 298
General desire for developing gliding—Responsibility for developing it . 299
Progressive formation of Gliding Clubs by Universities . . . 300
Needs of a Gliding Club 301
Management of Gliding Clubs 302
Financial implications of our proposals—Numbers that can be trained . 303
Manufacture of Gliders in India 304
Recommendations 305

CHAPTER XV

Development of Airmindedness

Development of Airmindedness 306
Recommendations 307

Paragraphs

CHAPTER XVI

Financial Implications of the Recommendations

Financial Implications of the Recommendations . . . . . 308—312

CHAPTER XVII

Summary of recommendations . . . . 313—381

CHAPTER XVIII

Acknowledgements . . . . 382—389

सत्यमेव जयते

PART II

APPENDICES AND STATISTICS

Appendices

A.—Questionnaire issued by the Committee.

B.—List of Bodies and Persons to whom copies of the Committee's Questionnaire were sent.

C.—List of Memoranda received by the Committee.

Other Memoranda and Representations received by the Committee.

D.—List of Foreign Embassies who supplied information on Training Facilities.

E.—List of Bodies and Persons who gave Oral Evidence before the Committee.

F.—Proposed Rules for Licensing of Civil Air Pilots.

G.—I. C. A. O. Curriculum for the Training of Private Pilots, Commercial Pilots and for *Instrument Rating*.

Statistics

I.—Statement giving the particulars of the income and the financial assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during the period of six years, ending the 31st March, 1952.

II—VII.—Statements giving the particulars of the income and the financial assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during each of the years ending 31st March, 1947, to 1952.

VIII.—Statement giving the particulars of (1) the detailed breakdown of expenditure (2) the number of aircraft under operation (3) the number of hours flown (4) the value of aircraft and properties owned by the Clubs (5) the working cost per hour of all the subsidised flying clubs in India during the period of six years ending 31st March, 1952.

IX—XIV.—Statements giving the following particulars in connection with each of the flying clubs in India for each of the years ending the 31st March, 1947 to 1952 : (1) the detailed breakdown of expenditure (*ii*) the number of aircraft under operation (*iii*) the number of hours flown (*iv*) the value of aircraft and other properties (*v*) the working cost per hour.

XV.—Statement giving the following particulars in connection with the aircraft owned by and loaned by the Government to all the flying clubs in India during each of the six years ending the 31st March, 1952; (*I*) aircraft at the beginning of the year (*ii*) aircraft added during the year (*iii*) aircraft written off during the year (*iv*) aircraft at the end of the year.

XVI—XXV.—Statements giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to each of the ten Flying Clubs during each of the six years ending the 31st March, 1952:

(*i*) aircraft at the beginning of the year
(*ii*) aircraft added during the year
(*iii*) aircraft written off during the year
(*iv*) aircraft at the end of the year.

XXVI.—Statement giving the number of hours flown at each of the Flying Clubs in India and the total of A, A-1 and B licences issued to the trainees of each of these Flying Clubs during each of the six years ending the 31st March, 1952.

XXVII.—Statement giving the particulars of the different types of aircraft owned by and loaned to each of the Flying Clubs in India as on 31st March, 1952.

XXVIII.—Statement indicating the places from where the trainees for 'A' licence of each of the Flying Clubs were trained for each of the three years ending the 31st March 1952:

(*i*) trainees normally residing in the city
(*ii*) trainees coming from outside the city
(*iii*) trainees who come from outside the State.

XXIX.—Statement indicating the places from where the trainees for 'B' licences of each of the Flying Clubs were trained for each of the three year ending the 31st March, 1952:

(*i*) trainees normally residing in the city
(*ii*) trainees coming from outside the city
(*iii*) trainees who come from outside the State.

XXX.—Statement giving the number of instructors employed by the Flying Clubs and the C. A. T. C. Allahabad with the particulars of their nationality and the places where they were trained as on the 30th June, 1952.

XXXI.—Statement giving the number of trainees for 'A' and the trainees for 'B' licences at the Flying Clubs of India as on 30th June, 1952.

XXXII.—Statement giving the particulars of the starting salary and the total salary drawn by the Instructors, Engineers and Secretaries of each of the Flying Club in India as on 30th June, 1952.

XXXIII.—Statement giving the number of Commanders and Co-pilots employed by the scheduled and non-scheduled airlines of India as on the 30th June, 1952, together with the particulars of their nationality and the places where they were trained.

PART III

Observations of Shri T. P. Bhalla on the terms of reference of the Committee on Training of Civil Air Pilots.

सत्यमेव जयते

STATEMENTS

सत्यमेव जयते

PART I

CHAPTER I

INTRODUCTORY

Appointment of Committee and Terms of Reference.—The Government of India, Ministry of Communications, constituted a Committee to examine the existing system of civil air pilots training in all its aspects and recommend measures for its improvement, consistent with economy, by their order No. 14-A/25-52, dated the 15th April, 1952. It reads as follows:—

No. 14-A/25-52

Government of India

MINISTRY OF COMMUNICATIONS

Dated New Delhi (3), *the* 15*th April* 1952

ORDER

The Central Government is pleased to constitute a Committee on Training of Civil Air Pilots and to appoint the following on the Committee:—

(1) Shri M. A. Master, Chairman.

Members

(2) The Director General of Civil Aviation or his Representative.

(3) A Representative of the Indian Air Force.

(4) Raja Bajrang Bahadur Singh, Raja Saheb of Bhadri.

(5) Shri K. K. Roy, Managing Director, Airways (India).

(6) W/Cdr. W. H. Burbury, Airline Manager, Air Services of India.

(7) Capt. S. Bujakowski, Director, Himalayan Aviation.

(8) Shri G. S. Subramaniam, Deputy Director, Training and Licensing, Civil Aviation Department. Member-Secretary.

2. The Committee shall examine the existing system of civil air pilots training in all its aspects and recommend measures for its improvement consistent with economy, with particular reference to the following:—

I. Training of Commercial Pilots

(a) Qualifications, number and method of selection of trainees.

(b) Organisation of institutions for training of commercial pilots—study of the working of the Civil Aviation Training Centre and proposals for its improvement.

(c) Legislation pertaining to commercial flying.

(d) Curricula for the training of commercial pilots, of various grades, namely, Junior airline pilots, Command pilots and Co-pilots for single-engined, twin-engined and multi-engined aircraft.

(e) Training for special types of aircraft and special types of work—e.g., Helicopters, aerial survey and spraying of chemicals.

(f) Standardisation of training aircraft and equipment.

(g) Scheme for financial assistance for training of Commercial pilots—incidence of costs on pilots, airlines and Government.

(h) Ensuring operational efficiency of pilots—system of periodical checks and refresher courses, laying down of conditions for avoidance of fatigue of air crew.

(i) Qualifications for check pilots and instructors for conversion courses and their periodical checks.

(j) Standardisation of scales of pay of different grades of pilots, check pilots and conversion course instructors.

(k) Liability of airline pilots to serve under the State, if required.

II. **Training of Private Pilots**

(a) Qualifications, number and method of selection of trainees.

(b) Evaluation of flying clubs and other agencies for the training of private and commercial pilots and recommendations for organisation of Model Institutions, giving details of organisation and equipment.

(c) Legislation pertaining to private flying.

(d) Curriculum for the training of private pilots.

(e) Standardisation of training aircraft and equipment.

(f) Scheme for financial assistance for training private pilots, including concessions in customs duty on light aircraft, aircraft parts, light aircraft radio, landing and housing fees and duty on aviation petrol.

(g) Qualifications of Flight Instructors and other staff engaged in flying training institutions.

(h) Scales of pay for flight instructors and other staff employed in the training institutions.

(i) Encouragement of private flying generally, and in particular by students of colleges and technical institutions.

III. Gliding and other media for encouraging airmindedness among the young.

(Sd.) A. V. PAI,
Secy. to the Government of India.

2. An amendment to the above order was issued by a subsequent order of the Government of India, Ministry of Communications, No. 14-A/25-52, dated the 30th April, 1952. That order is reproduced below:—

Government of India

MINISTRY OF COMMUNICATIONS

Dated New Delhi (3), *the* 30*th April* 1952.

ORDER

No. 14-A/25-52.—The Central Government is pleased to direct that the following amendments be made in the Government of India, Ministry of Communications, Order No. 14-A/25-52, dated the 18th April 1952 constituting a Committee on Training of Civil Air Pilots:—

In paragraph 2 of the said Order,

(1) for clause I(c), *viz.*, "Legislation pertaining to commercial flying," the following should be substituted, *viz.*

"Legislation pertaining to the licensing of commercial pilots."

(2) for clause I(d), *viz.* Curricula for the training of commercial pilots of various grades, namely Junior Airline Pilots, Command Pilots and Co-pilots for single-engined, twin-engined and multi-engined aircraft", the following should be substituted, *viz.*

"Curricula for the training of commercial pilots of various grades and qualifications of Command Pilots and Co-pilots for single-engined, twin-engined and multi-engined aircraft."

2. The Central Government is also pleased to appoint also Professor C. N. Vakil, Director, School of Economics and Sociology, Bombay, as Member of the Committee on Training of Civil Air Pilots.

(Sd.) A. V. PAI,
Secy. to the Government of India.

3. **Issue of a Press Note on the formation of the Committee.**—A Press Note was issued by the Government of India on the 10th April, 1952, inviting the attention of the public to the impending appointment of the above Committee.

4. **Preliminary meeting and issue of Questionnaire.**—A preliminary meeting of the Committee was held at the office of the Director General of Civil Aviation, New Delhi, on the 17th, 18th and 19th April, 1952. The Committee carefully examined the Terms of Reference from all points of view and drew up a comprehensive questionnaire covering all their aspects. This questionnaire is appended herewith as appendix 'A'.

5. 2,500 copies of the questionnaire were printed. Copies were circulated to all Members of Parliament, Ministries of the Government of India, Air Headquarters, Governments of the States, airline companies, Aero Club of India, Flying and Gliding Clubs, Chambers of Commerce, Vice-Chancellors and Registrars of Universities, Principals of Colleges and Technical Institutions, Oil Companies, Trades Associations, Insurance Companies, and others interested in the training of civil air pilots, *vide* list given in Appendix 'B'.

6. The questionnaire was issued on the 30th April, 1952, and the 10th June, 1952, was fixed as the last date for the receipt of replies. In view of the representations received that further time should be given for submitting replies to the questionnaire, the Committee extended the date for final reply from 10th June to 20th July 1952. A notification was also issued in the first week of May, inviting parties interested in the enquiry, to obtain copies of the questionnaire from the Secretary of the Committee, if not already received by them, so that they might send, if they so chose, their replies in time.

7. **Response to the Questionnaire.**—The Committee expected that the Members of Parliament would be pleased to favour it with their views and suggestions on such general issues as the desirability or otherwise of giving financial assistance for training of Private and Commercial Pilots and the steps to be taken for encouraging air-mindedness amongst the youth of the country, which were embodied in the Terms of Reference. The expectations of the Committee, were, however, not fulfilled. Reply to its questionnaire was not received from any Member of Parliament. The Committee did not also receive any reply to its questionnaire from the Deccan Airways, Ltd. In response, however, to its several requests, the Deccan Airways sent Capt. Huilgol to give oral evidence before the Committee, for which the Committee is thankful to that Company.

8. Most of the replies were received before the end of June, 1952. Very few replies were received subsequent to that date. The Committee, however, dealt with replies which were received even after the extended date, viz. 20th July, 1952. Only a few persons other than those who were actually invited by the Committee to consider its questionnaire felt interested enough to send replies. A list of the bodies and persons, who sent replies to the questionnaire, is given in Appendix 'C'.

9. **Position regarding training in civil flying and State assistance in foreign countries.**—The Committee addressed letters to the Diplomatic representatives in India of the Governments of foreign States and requested them to obtain information for it from their Governments in regard to the important issues embodied in the questionnaire and particularly in connection with the nature and extent of the financial assistance granted by these countries for the training of Private and Commercial Pilots. Replies were received from the countries shown in Appendix 'D'.

10. **Information about Training of pilots in other countries.**—During May, 1952, the Chairman proceeded to Switzerland to attend, as a Delegate, the meeting of the Joint Maritime Commission. He availed himself of this opportunity to visit the Netherlands and the

United Kingdom in June. He had several informal talks with the officers of the Ministry of Civil Aviation at Geneva, Berne, Zurich, London and the Hague. He also visited the Netherlands Flying School at the Hague and the training centres of the B.O.A.C. and B.E.A. in London, and the Air Service Training Centre, at Hamble. The information secured by the Chairman, during his talks and visits mentioned above, was placed by him before his colleagues. Important memoranda in connection with the system of recruitment and training, prepared at the request of the Chairman by the Ministry of Civil Aviation in the United Kingdom and the British Overseas Airways Corporation, were also submitted by him to the Members of the Committee. Mr. Bhalla, one of our colleagues during his recent visit abroad also secured for us information in regard to the working of several important training institutions. It was also made available to the Committee, both the memoranda and the information proved of great use to the Committee in its deliberations.

11. **Programme of Enquiry.**—The Committee held its second series of meetings at Bombay on the 2nd, 3rd and 4th July, 1952. The salient points raised in the replies received were considered and discussed by the Committee at these meetings. Lines on which witnesses should be examined for eliciting further information were carefully reviewed. It was decided that the Committee should visit the Civil Aviation Training Centre at Allahabad, the Flying and Gliding Clubs in the country, the Aero Club of India at Delhi, the Aeromodellers Association at Calcutta, the Hindustan Aircraft Ltd., at Bangalore, and the training institutions of the Indian Air Force at Jodhpur, Tambaram and Jalahali, and the Joint Services Wing of the National Defence Academy at Dehra Dun. A programme of visits to these various institutions was also settled at these meetings. It was also arranged that oral evidence of the witnesses should be recorded during the visit of the Committee to these institutions.

सत्यमेव जयते

12. **Visits to Training and connected institutions—Examination of witnesses.**—During the first stage from the 10th to the 17th July, 1952 the Committee visited the Civil Aviation Training Centre at Allahabad, the Hind Provincial Flying Club at Allahabad, Lucknow and Kanpur, the Northern India Flying Club at Jullundur, the Delhi Flying Club and the Delhi Gliding Club at Delhi and recorded the evidence of their representatives. The Committee met Pandit Kunzru, Vice President of the Aero Club of India at Delhi, when the members had an informal exchange of views with the members of the Aero Club on questions connected with their enquiry. The Committee witnessed at Delhi the gliding demonstration given by Dr. Zepkes and also inspected the glider construction in the research and development section of the Civil Aviation Department at that place. The Committee visited the Air Force Academy at Jodhpur, where interesting and illuminating explanations were given to it by Group Captain Goyal as regards their system of training. Air Commodre Engineer gave evidence on behalf of the Air Headquarters, and Colonel Virendra Singh, Director, National Cadet Corps, appeared before the Committee, at its request, and enlightened the members on the aims and objects of the National Cadet Corps and gave an idea of the work which that organisation and particularly its Air Wing was doing in the country. Shri K. M.

Raha, the then officiating Director General of Civil Aviation appeared before the Committee, but as he told the members that he would like only to express his personal views and not offer evidence in connection with the memorandum submitted by the Director General of Civil Aviation, the question of recording his personal views was postponed to a future meeting. It may be added in this connection that the Committee requsted the Ministry of Communications to arrange for the tendering of oral evidence before the Committee by an appropriate person for elaborating, elucidating and supporting the views embodied in the memorandum submitted by the Director General of Civil Aviation. No one, however, appeared before the Committee for this purpose. The Committee regrets that it was thereby denied the opportunity of securing the elucidation of the views expressed in the memorandum submitted by the Director General of Civil Aviation and understanding their implications in their true perspective.

13. **Informal talk with Shri Govind Vallabh Pant, Chief Minister of the Uttar Pradesh.**—During the course of the visit of the Committee to Lucknow, the Chairman had an informal talk with Shri Govind Vallabh Pant, Chief Minister of the Uttar Pradesh. This talk was followed by D.O. correspondence. The extent to which the Government of Uttar Pradesh could give financial assistance for the promotion of civil flying in the State generally, and particularly for assisting the cadets of the Air Wing Units of the National Cadet Corps for that purpose was the main subject of the informal talks. This matter will be further referred to at the appropriate place in a subsequent chapter of the report.

14. **Meeting with the Minister of Communications.**—Before the Committee broke up at Delhi, Shri Jagajivan Ram, Minister of Communications, was pleased to meet the Members. The Chairman gave him, as desired, an idea as to how the Committee was proceeding with its work.

15. **Visits to Flying Clubs and other Institutions (continued).**—During the second stage of the tour programme from the 25th July to the 2nd August, the Committee visited the flying clubs at Calcutta, Patna, Bhubaneswar, Madras and Bangalore and recorded the evidence of their representatives. The Members of the Committee went round the offices of the Aero Modellers' Association, Calcutta and were shown the various models that were exhibited therein. They visited one of the I.A.F. Ground Training Schools at Tambaram, and Group Captain Mehra explained to them the nature and scope of the training given therein. They also visited the Indian Air Force Technical Training College for officers and apprentices at Jalahali and got useful information in regard to the system of training at that school. The Committee had informal talks with the management of the Hindustan Aircraft Ltd., on the subject of standard aircraft for training and particularly the use of their H.T-2 Trainer Aircraft for that purpose. The members also enquired of Shri J. M. Shrinagesh, the General Manager of that company as to how his company could assist the flying clubs in the solution of the difficult question of the supply of spares for aircraft in time and at a reasonable price. The visit also provided the Members with an opportunity to examine their H.T-2 Trainer aircraft under construction from all

points of view. The demonstration in flight and in aerobatics on this H.T-2 Trainer aircraft, given by Captain M. V. Namjoshi, were also witnessed by Members.

16. The Committee also accepted the invitation of the Principal of the Madras Institute of Technology at Madras which plays an important part in the construction of gliders and provides training for Ground Engineering in connection with aircraft. In addition to the recording of the evidence of the witnesses connected with the flying clubs mentioned above, representatives of the Bharat Airways Ltd., Airways (India) Ltd., Jamair Co. Ltd., and the Aero Modellers' Association gave evidence before the Committee. The Committee had also the benefit of recording the views, on the subject of its enquiry, of Shri N. C. Ghosh, Director General of Transport of the West Bengal Government, and an ex-Director General of Civil Aviation, Captain M. V. Namjoshi, Test Pilot of the Hindustan Aircraft Ltd. and Shri P. H. Davy, Indian representative of A. V. Roe & Co. The second stage of the tour of the Committee ended at Bangalore on the 1st August, 1952.

17. **The Governor of Madras receives the Members.**—The Governor of Madras was pleased to receive the Members of the Committee, while they were at Madras. They had very useful talk with the Governor on the subject of the financial assistance which the Madras State could give for encouraging civil flying and the manner in which the Air Wing of the National Cadet Corps would help the flying clubs in stabilising their activities. This informal talk was followed by D.O. correspondence. This matter will be referred to again in a subsequent chapter.

18. **Visits to institutions and examination of witnesses (continued).**—The members assembled again in Bombay on the 11th August, 1952 and continued in session till the 30th day of that month. During this period, the Committee paid a visit to the Flying Clubs at Bombay and Nagpur, the Indian Gliding Association at Poona, and the training establishment of Air India Ltd., at Santa Cruz. In addition to the recording of the evidence of the representatives of the Flying Clubs, the Gliding Association, the Air India Ltd., the Air Services of India Ltd., and the Deccan Airways Ltd., Air Vice Marshal Mukerjee came over specially from Delhi, at the request of the Committee, to Bombay and tendered very important evidence before the Committee. Mr. A.C.P. Wadia, Mr. G. C. Arya, Chief Inspector of Flying of the Civil Aviation Department and Group Captain Harjinder Singh on behalf of certain Flying Clubs, were also examined by the Committee.

19. **Conversation with trainees at Flying Clubs.**—In addition to meeting the members of the Flying Clubs, the Committee made it a special feature of their visits to these Flying Clubs to meet the trainees and the staff of each of these clubs and to have frank talks with them on all aspects of training including its cost and the prospects of their employment in the future in the air transport industry. At some of the clubs, they were not satisfied with the P.G.T. given to them. Many of them had to go to the C.A.T.C. for the purpose. The Committee would like to mention two points of importance which were brought to their notice by trainees of all the clubs. They

all bitterly complained against the recent order of the Director General of Civil Aviation which made it obligatory on them to go to the Flying School at Allahabad for their conversion training on Dakota. They strongly protested against the levy of a very large fee of Rs. 4,600 for that purpose. They pointed out to the Committee that while a trainee undergoing training at the Flying School at Allahabad from *ab-initio* to the Dakota conversion was called upon to pay only 4,500, the pilot holding 'B' licence, trained at the club, was called upon to pay the sum of Rs. 4,600 only for Dakota conversion. They criticised severely this policy which they considered as discrimination. They lamented this further heavy burden on their already high cost of training. Their other serious complaint was that a large number of pilots holding 'B' licence were unemployed. They, therefore, appealed to the Committee to make such recommendations to the Government as would rapidly improve their prospects of employment in the future. These grievances have been examined at their proper places in this report.

20. **Members meet Shri Morarji Desai, Chief Minister of the Bombay State.**—The Chief Minister of the Bombay State received the members of the Committee, first at Poona, and later at Bombay. The members had useful informal talks with him on the subject of the nature and extent of financial help which the Bombay State would render to the Flying Club movement and to the Air Wing of the National Cadet Corps. These talks were followed by D.O. correspondence between the Chairman and the Chief Minister. Reference will be made to this subject later at the appropriate place in the Report.

21. **Informal talk with Shri J. R. D. Tata.**—The Committee met in Bombay Shri J. R. D. Tata, in response to his request, and had a useful informal talk with him in connection with questions of its enquiry.

सत्यमेव जयते

22. The third stage of the tour of the Committee ended at Bombay on the 30th August, 1952.

23. The names of members who gave evidence before the Committee are given in Appendix 'E'.

24. **Discussions within the Committee.**—The Committee met again at Bombay from the 15th to the 24th September 1952. The views submitted to, and the evidence given before the Committee were carefully analysed and examined. Further data on a number of points, which arose out of discussion, had to be gathered. The Committee could not, therefore, finalise its conclusions at Bombay. After receiving information, as required, the Committee met at Allahabad from the 11th to the 14th November, 1952, and determined the lines on which the report should be drafted.

25. The Committee then proceeded to Dehra Dun to study the system of training adopted by the Joint Services Wing of the National Defence Academy. Members were received by the Commandant, Major General Wadalia. He explained to them the broad features of their system of training. Members were then taken

round the institution. Members were also able to attend the Selection Board of the Air Force, where Wing Commander Bobb explained to them the system under which cadets intending to join the Air Force as pilots were selected for admission to the Joint Services Wing and Air Force Academies.

26. **Concluding meeting and signing of the Report.**—The Committee met finally at Bombay from the 5th to the 12th January, 1953. The draft report was then discussed and finalised on the 10th instant. On...............the Committee received the following order from the Government of India, Ministry of Communications:

No. 14-A/25-52

GOVERNMENT OF INDIA

MINISTRY OF COMMUNICATIONS

New Delhi-2, 8th January, 1953.

ORDER

The Central Government is pleased to direct that the following further amendments be made in the Government of India, Ministry of Communications, Order No. 14-A/25-52 dated the 15th April, 1952, constituting a Committee on Training of Civil Air Pilots:—

In the first paragraph of the said Order, for the words "The Director General of Civil Aviation or his Representative" the following shall be substituted, namely,—

"Shri T. P. Bhalla or his Representative".

A. V. PAI,

Secy. to the Government of India.

Mr. Bhalla is however not available at the time of signing it. The Committee has unanimously decided to submit the report as duly signed by them to Government without the signature of Mr. Bhalla.

The report was signed by the members of the Committee on 12th January 1953.

CHAPTER II

FLYING CLUB MOVEMENT IN INDIA

27. ***Beginnings of demand for training facilities.***—Flying Clubs have played an important part in kindling the love for the sport of flying. They have provided facilities for training amateur fliers to obtain their licences as private pilots. The Flying Clubs have been the pioneers in the field of training for civil aviation. They have popularised civil flying and have encouraged the spreading of air-mindedness in the countries in which they have been established.

28. We have been asked to "evaluate flying clubs and other agencies for the training of private and commercial pilots" and make "recommendations for organisation of model institutions giving details of organisation and equipment". We, therefore, consider it essential

to examine the circumstances under which the Flying Clubs came into existence in India and the progress which they have made upto now in the field of civil flying.

29. **First reference to Aviation Training.**—The establishment of the light aeroplane clubs in the United Kingdom, in Australia, and in other countries created a strong desire amongst Indians for the establishment of similar clubs in India. The proposal of the British Government that India should make substantial financial contribution towards the fulfilment of their Imperial Air Scheme, connecting England with Karachi, further strengthened and deepened that desire. Reference to the necessity for aviation training was made for the first time in a memorandum which was submitted by the Indian Air Board to the Department of Industries & Labour in July 1926. One of their recommendations was that the Government should accept the principle of subsidising commercial internal air services from Indian revenues "subject to the conditions that Indian capital should be invited to come forward and that facilities should be given for the training and employment of Indian pilots and other personnel". The demand for the provision of facilities for imparting training in flying was thus steadily gaining ground in the country.

30. **Place of Training in India's Air Policy.**—The question of introducing aerial transport into India was under discussion as far back as 1917. It was decided in September 1919 to accept the principle of giving a monopoly for the carriage of mails throughout India to a single transport company. The quesion of a monopoly company, however, had to be dropped as there was little or no knowledge and previous experience of aerial transport available in the country. The question of policy was reconsidered in 1920. Instead of giving a monopoly to a single transport company for the carriage of mails throughout India, it was decided that the Government should prepare air routes between Bombay and Calcutta, and Calcutta and Rangoon. They should construct the necessary aerodromes, hangars, quarters and godowns, and provide the necessary ground equipment, lighting, staff and meteorological facilities. They should also hold themselves responsible for all maintenance charges. The financial stringency of the period, however, made it impossible for the inauguration of any air services at that time. A new situation, however, developed when England wanted to extend two services to India, one an airship service from England, and the other an aeroplane service from Egypt. India had to take decision as to what part it should play both in the control of these external services and in the development of her own internal facilities. The Air Board saw no possibility of establishing commercial air services in India without substantial subsidies to the operating companies in the earlier years of their existence. They were of the opinion that India would not obtain and retain her due share of the business of aerial transportation, solely by granting subsidies to external companies at the expense of the Indian tax-payer, and without the interest and support which the employment of Indians and Indian capital in the business would provide. They, therefore, held the view that it was essential for the development of civil aviation to elicit that interest and support by securing opportunities "for the investment of Indian capital in commercial air services and the training and employment of young

Indian men in them". They recommended that the Government of India should take steps to establish a claim to be consulted at all stages on the terms of any contract for an air service touching India, and should insist on the inclusion in such contract of such provisions as might be necessary to promote India's interest, *e.g.* "the training and opportunities for the subsequent employment of Indian personnel". It will thus be noticed that the demand for the provision of facilities for imparting training to Indians in flying was steadily gaining ground in the country.

31. **Assembly asks Government to declare its Training Policy.**—Long before the first Indian internal air service was started in October 1932, questions were put by Dr. Moonje and Pandit Hridayanath Kunzru in the Legislative Assembly in February and March, 1927, whether Government would consider the starting of aviation clubs to make the knowledge of aviation popular, and whether Government had any scheme for encouraging Indians to start such light aeroplane clubs in the country. During the debate that took place in March 1927 in connection with the Supplementary Grant in respect of Aviation not exceeding Rs. 9,96,000 in connection with the Imperial Air Scheme, it was emphasised that the British Companies concerned should give facilities both for training and employing Indians as pilots. Pandit Madan Mohan Malaviya requested the Government to make it clear that it would be their definite policy to provide all the necessary instruction in civil aviation to the youth of India. Mr. Jinnah called upon the Government to give them an assurance that the Director of Civil Aviation, when appointed, would be ordered to prepare immediately a scheme for giving training to Indians in civil aviation.

32. **Government willing to foster the training of Indians as pilots.**—Sir Bhupendra Nath Mitra, Member of Industries and Labour of the Government of India, assured the members of the Legislature that it was the intention of the Government "to foster the training of Indians as pilots, etc. and as soon as we get our Director of Civil Aviation, one of his functions will be to prepare a paper showing the steps taken in the other principal countries of the world in regard to training in the various subjects connected with civil aviation, and the action to be taken in India in that direction". He further added that—

> "There is another method of training which has been in vogue both in England and Australia. In those countries, in order to encourage the practice of flying among the general public with freedom from any military liability and Government control, and with the object of the development of air sense, the formation of light aero clubs, which provide facilities for flying at a comparatively small cost, has been facilitated by Government grants. As I have already said, a scheme for the formation of similar clubs in India has already been put forward, and it will receive the consideration of Government as soon as we have got our expert in Civil Aviation".

33. Major Patwardhan, an Indian pilot, who had served the Afghan Government in its Air Force, had submitted to the Government a scheme for the formation of light aeroplane clubs, and Sir Bhupendra

Nath Mitra had promised that the Government would give it their most sympathetic consideration. A very hopeful note was struck at the end of the debate by Sir Bäsil Blackett, the Finance Member of the Government of India, when he said—

> "If my Hon'ble friend Pandit Madan Mohan Malaviya will busy himself in the next week or two in creating the aeroplane club of Delhi, I am sure that Sir Bhupendra Nath Mitra will be very anxious indeed to support him in securing results".

34. The ground was thus prepared for the creation of the light aeroplane clubs in the country and it did not take long before the first four Flying Clubs came into existence in India.

35. **Government announces the Policy for the formation of Light Aeroplane Clubs.**—The Government fortunately did not take long in this case to translate their assurances into action. The Department of Industries and Labour submitted a memorandum to the Standing Finance Committee of the Legislature on the 18th January, 1928, for grant of financial assistance to four Light Aeroplane Clubs in India. The following quotation from that memorandum gives a clear idea of what the Government intended to do in this connection:—

> "In order to popularise and develop civil flying in this country and to enable flying to be learnt at a comparatively low cost in India, it is proposed that four Light Aeroplane Clubs should be started at Karachi, Delhi, Bombay and Calcutta, with Government assistance, subject to obtaining a satisfactory assurance in each case as to membership and local financial support in the shape of entrance fees and subscriptions. It will be recognized that the encouragement of private flying is of considerable importance in developing an 'air sense' among the public and familiarising the community with the possibilities of air transport. In India, there are at present no facilities whatsoever for civilians to learn to fly. The Government of India desire to encourage Indians to fly and take an interest in aviation with a view to opening a new avenue of employment, and the formation of Light Aeroplane Clubs is considered to be the best possible way of doing so. If civil aviation in India is to develop, it will be necessary to train a staff for its administration; with this object in view, a scheme for scholarships has been prepared and forms the subject of a separate reference to the Committee. This scheme contemplates that the preliminary flying training of persons selected in India for scholarships shall be undertaken by these Light Aeroplane Clubs, when formed. It will be realized that the Clubs would have great difficulty in finding sufficient capital to provide themselves with machines and obtain a suitable aerodrome and shed accommodation"

36. Encouragement of private flying for developing air sense, familiarising the community with the possibilities of air transport, and opening a new avenue of employment for the sons of the soil

were the main objectives which shaped the policy of the Government in this vital matter, and it is sifinificant to note that they considered the establishment of Light Aeroplane Clubs as the most appropriate machinery for the attainment of those objectives.

37. **Financial assistance to Clubs.**—It was recognised from the very start that neither can the Clubs function, nor can they impart training in flying without Government assistance. The financial assistance was, in the first year, a grant of Rs. 26,149 for purchase of two Moth aircraft and spares, a grant-in-aid for maintenance and replacement of Rs. 20,000, a further sum of Rs. 9,000 for provision of hangar, on which Government would have a lien, and Rs. 2,250 as bonus for training 15 pilots at Rs. 150 per pilot. The total liability came to Rs. 57,669 per Club in the first year.

38. **Flying Clubs lay foundation of civil flying.**—The year 1928 is, therefore, the first important landmark in the history of training in the art and science of civil flying. Although our beginning was humble, it cannot be denied that the honour goes to the Flying Clubs for taking the initiative for giving training in civil flying and for popularising the same amongst the people of the country. Flying Clubs in India laid, therefore, the foundation of civil flying as they did in other countries. This historical fact has to be fully appreciated in any scheme that may be prepared for the training of civil air pilots in the future.

39. **Development of the flying Club movement.**—We may give here a brief summary of the movement of the flying clubs in India, the way in which it has developed and the work which the flying clubs did pre-war, during war and the post-war periods. This will enable us to look at the picture clearly and comprehensively and to understand how the circumstances of the different periods influenced the nature, the type and the extent of the training given at the flying clubs.

सत्यमेव जयते

40. **Progressive increase in the number of flying clubs.**—All the four flying clubs at Delhi, Bombay, Calcutta and Karachi were started almost at the same time. The Delhi Flying Club was founded in the beginning of 1928 and was formally opened by Lord Irwin, the then Viceroy of India, on the 29th January 1929. The Viceroy honoured the Club by becoming its first Patron. This tradition has been continued and the Hon'ble Dr. Rajendra Prasad, President of the Union, is the Patron-in-Chief of the club today. Upto 31st March, 1952, 198 pupils have obtained their 'A', 5 their 'A-1' and 60 their 'B' licences.

41. The Bombay Flying Club was founded in May, 1928. Sir Frederick Sykes, the then Governor of Bombay, became its Patron-in-Chief and Sir Victor Sassoon, who himself was an enthusiastic aviator, became its first Chairman. The club started its flying activities in January, 1929. This club has the honour to train an Indian who obtained the first 'A' licence issued in this country. That person played a magnificent part in the development of the air transport industry in India, and has become a very distinguished figure in the world of civil aviation. That person, as is well known, is Mr. Jehangir Tata. This club trained 270 pupils for 'A' licence, 1 for 'A-1' and 69 for 'B' licence upto 31st March, 1952.

42. The Karachi Aero Club was also founded in 1928. It is now in Pakistan.

43. The Bengal Flying Club was also inaugurated in 1928 under the Presidentship of the Hon'ble Mr. Justice Costello. It was officially opened on the 6th February 1929 by His Excellency Sir Stanley Jackson, the then Governor of Bengal. His Excellency the Governor of West Bengal is today the Patron-in-Chief of that Club. This club trained 159 pupils for 'A' licences, 4 for 'A-1' licences and 40 for 'B' licences upto 31st March, 1952.

44. The Madras Flying Club was founded in 1929. Sir George Stanley, the then Governor of Madras, became the Patron of that club. This tradition has been maintained by the successive Governors of that province. The fine building which the club now owns was constructed out of the funds raised by Sir Arthur Hope, the then Governor of the Province during the war. The Club has trained 199 pupils for 'A' licences, 29 for 'A-1' and 59 for 'B' licence upto 31st March, 1952.

45. It is remarkable that the Flying Clubs had the good fortune of receiving the support of the highest in the land from the very start.

46. The Delhi Flying Club organised 2 separate clubs—one at Cawnpore with a branch at Lucknow, called the U.P. Flying Club Ltd., and the other at Jodhpur, in 1932, which was styled "The Jodhpur Flying Club". The Jodhpur Flying Club did not revive its flying activities after the war, while the U.P. Flying Club was amalgamated with the Hind Provincial Flying Club.

47. The Northern India Flying Club was started in November 1932. His Excellency the Governor of the Punjab became the Chief Patron of the Club. Their Highness the Maharajas of Jammu & Kashmir and Patiala joined the Club as its Patrons. After the partition this Club ceased to be a flying club of India. Another Club was, however, soon started at Jullundur by the enthusiastic members connected with the old-club, each of them contributing a sum of Rs. 1,000 for the estabishment of the new club. The substantial grant of Rs. 3,00,000 received from the Government of Punjab put the new club on its feet in May 1948. It was called "The Northern India Flying Club, Jullundur." This club has trained 67 pupils for 'A' licence, 1 for 'A-1' and 11 for 'B' licences up to 31st March, 1952.

48. The Hyderabad State Aero Club was started in 1936. It was run mainly by the Hyderabad State. It ceased to function during the war. The activities of the club were, however, revived in 1947. With the integration of the Hyderabad State with the Union, the club came under the direction of the Central Government. The club, however, had to be closed in 1951 as the poor demand for flying could not sustain its activities. This club trained 47 pupils for 'A' licences and 11 for 'B' licences up to 31st March, 1952.

49. During the period of the war only one club came into existence. That was the Bihar Flying Club at Patna. It was inaugurated by Sir T. S. Stewart, the then Governor of Bihar. It started its

flying activities from January, 1941. The building of the club was constructed out of funds donated by the people of Bihar. No further club was started during the war period. This club has trained 87 pupils for 'A' licences, 7 for 'A-1' licences and 10 for 'B' licences up to 31st March, 1952.

50. During the post-war period, the Hind Provincial Flying Club came into existence in March, 1946. As suggested by Pandit Jawaharlal Nehru, Prime Minister, it was named the 'Hind Provincial Flying Club' on July 15, 1947. Pandit Govind Vallabh Pant, the Chief Minister of Uttar Pradesh who evinced the warmest interest in the development of civil aviation in his State, entrusted the development of the club to Raja Saheb of Bhadri. Shri Lal Bahadur Shastri, our present Transport Minister, was appointed as the Chairman of the Board of Directors. With the generous assistance of the Government, Raja Saheb bought ten Piper Cub Trainers and inauguarted the flying activities of the club. In addition to the provision of flying training facilities for the young men of the State, it was also the object of the Club to create an organisation which would undertake to meet all the flying needs of the Government of the State. This is a special feature of the activities of this club. It has also the distinction of starting its branches—one at Allahabad in October, 1947, and later on the other at Cawnpore. The club was entrusted with the flying training of 18 cadets from Indonesia. While ladies have been trained as pilots by almost all the flying clubs in India, the Hind Provincial Flying Club has the distinction of training the first Indian lady, holding the Commercial 'B' Pilot's licence, with a permanent Dakota endorsement. This club has trained 176 pupils for 'A' licences, 13 for 'A-1' and 44 for 'B' licences upto 31st March, 1952.

51. This was followed by the Orissa Flying Club. It was registered in November, 1946. The flying activities were started in 1948. This club has trained 41 pupils for 'A' licences and 4 for 'B' licences up to 31st March, 1952.

52. The Mysore Government Flying Training School at Bangalore was formally inaugurated by Shri Jawaharlal Nehru, Prime Minister, on the 29th December, 1948. Originally the club was administered as well as financed by the Mysore State. Although the club is managed by a Committee appointed by the Mysore State, it was included in the list of clubs to which the Central Government gives financial assistance, after the integration of the State with the Union. This club has trained 11 pupils for 'A' licences upto 31st March, 1952.

53. The last club to come into existence during the post-war period was the Madhya Pradesh Flying Club at Nagpur. It was incorporated in March 1947 but it started its flying activities from the 2nd March, 1949. This club has trained 36 pupils for 'A' licences, 1 for 'A-1' and 7 for 'B' licences.

54. **Special activities of the Clubs.**—Apart from the training of the pupils for private and commercial pilots licences, the Delhi Flying Club carried air-mail between Karachi and Delhi from January 1932 to July 1933 in a Gipsy Moth Plane. The late Shri P. D. Sharma, the second Indian Commercial Pilot, trained by that Club, was in

charge of the Plane. Over 15,000 pounds of mails were carried and it is on record that the service ran according to schedule.

55. The Hind Provincial Flying Club has been flying the Ministers and officials of the State throughout the length and breadth of Uttar Pradesh both on twin-engined as well as single-engined aeroplanes. On February 12, 1948, the day of national mourning, twenty planes of this Club, participated in paying homage to the sacred memory of the Father of the Nation, by dropping flowers at the immersion spot, at the Sangham. Formation flying and salutation of the national flag were carried out by six planes of this club in December, 1948, at Jaipur, during the Congress Session. Two Pilots of the Club with two Piper Cubs succeeded in 1951 in rescuing persons that were marooned in the middle of the Brahmaputra Stream for six weeks. It will be interesting to know that within six hours of the evacuation of the last man, the island, on which they were marooned, was washed away. During the National Air Rally and Races of 1950, Miss Prem Mathur, the Lady Pilot of the Club, won a prize in the national air race in a Silvaire and Captain Namjoshi won the Willingdon Trophy Air Race in the Piper Cub of the Club. The Club also organised a national air rally and races at Cawnpore in 1951 in conjunction with the Air Force. Foreign countries participated in the Rally and a number of Pilots of the Club carried away several prizes as winners. This Club has also been able to design and develop, with the help of the Indian Air Force, a spraying apparatus to be fitted in light planes for use in pest control. Twelve of these were fitted to 12 L-5 aircraft which the Club placed at the disposal of the Government of Uttar Pradesh for Locust control. These varied activities show the great possibilities of utilising the institution of the flying clubs for the recreation and services of the people and turning the potential air-mindedness of the community into living and active reality.

56. **Flying Clubs in the pre-war period.**—During the pre-war period, *i.e.* from 1928 to 1939 there was hardly an appreciable demand for the pilots holding 'B' licences. There were only 2 Indian Airlines in operation in the country. The first Indian Airline started by the Tata Sons Ltd. commenced its operations on the 14th October, 1932, with 2 light single-engined aircraft. The other, *viz.*, The Indian National Airways Ltd., inaugurated an air service between Calcutta and Rangoon, linking with Imperial Airways service in December, 1934. It was, therefore, those who loved flying as a sport were mainly trained by the clubs during this period. According to the figures supplied to us by the D.G.C.A. Department, 1,057 "A" licences were issued in the country from 1928 to 1939. 563 out of this total number were issued to Indians, of which 472 were trained at the flying clubs. During the same period the number of 'B' licences issued in the country was 255. Of these, 93 were issued to Indians. There is, however, no separate record to show how many of these 93 were trained at the flying clubs. The figures, however, confirm the statement already made that the activities of the flying clubs during this period were mainly confined to the training of amateur fliers.

57. **Flying Clubs during World War II.**—When the war broke out, the activities of the flying clubs centred on the training of a large number of pilots and pilot instructors for meeting the needs of the

Air Force. From the figures submitted to us, we find that 329 pilots and 33 observers who were given elementary flying training at the flying clubs were taken up by the Air Force and given commissions in the Air Force. In order to assist the flying clubs to give this training, a pool of aircraft and pilot instructors was supplied to them. In January 1942, this training work was, however, taken over by the Air Force from the flying clubs. There were no pupils available whom the flying clubs could give training in flying. All activities in connection with flying were taken over by the Air Force. The clubs were, however, employed on army co-operation duties. These duties consisted of flying for anti-aircraft training. The clubs carried on this work till August, 1944. Thereafter the anti-aircraft training work was also taken over by the Air Force. With a view, however, to enable the clubs to continue the flying activities, the Defence Department gave them the necessary financial assistance to give free flying experience to the students of colleges who were members of the Indian Air Training Corps. These special activities came to an end and in 1946, when the clubs were again permitted to resume their normal peace-time activities. It will be noted that while the work given and the help granted by the Defence Department and the Air Force to the clubs, during the war, enabled them to keep themselves active, the contribution which the clubs thereby made to the war effort of the country was recognised in all responsible quarters as satisfactory.

58. **Post-war expansion of flying clubs.**—The post war period was dominated by the starting of a number of Airline Companies. During the period 1946 to 1948, 11 companies were licensed for the purpose of operating scheduled air transport services. There was a scramble for the purchase of aircraft. As the Air Transport Inquiry Committee has recorded: "The companies had equipped themselves with aircraft and spares on a scale far in excess of what was needed for the operation of the services which they could reasonably have expected to be reasonably allotted to them. This will be clear from the fact that the total number of transport aircraft now in possession of the scheduled services is 113 besides the number of small machines, while the number required for the operation of scheduled service is 70". This led to the unusual demand for the services of pilots holding 'B' licences. As the wages which these pilots received were comparatively higher than those which would be given under normal times, a large number of pupils sought admission into the different flying clubs for being trained as 'B' pilots.

59. It is this special demand for the training required to obtain the 'B' licence which contributed to a remarkabale rise in the number of hours flown at the different clubs. The special reduction in the fees charged to the pupil for flying per hour from Rs. 35 to Rs. 15 from 1946-47—later increased to Rs. 25 in 1949—made also its own contribution to this increase. It is significant to note that while the number of hours flown in 1946-47 was 10,952, they went up to 35,864 hours in 1950-51. This was mainly due to the private pilots extending their training at the Clubs for obtaining their 'B' licence. This is further borne out by the fact that the number of hours for which training was given for 'B' licence was continuously on the increase. In 1950-51, out of 35,864 hours flown at the Clubs, 25,266 hours were

flown for 'B' licences. In 1951--52, out of a total of 30,637 hours, flown at the Clubs, 22,206 hours were flown for 'B' licences. This bears eloquent testimony to the very strong demand for training for 'B' licences. During this period the Flying Clubs found full work on their hands. It is these peculiar circumstances that affected both the nature and the extent of the training given at the Flying Clubs.

60. During the post-war period from 1946-47 to 1951-52, the Clubs trained 937 pupils for 'A' licence, 42 for 'A-1' licence and 258 for 'B' licence. There was a steady rise in the number of trainees who were trained at the Flying Clubs for obtaining 'B' licence. Five trainees of the Clubs obtained 'B' licence in 1946-47, 9 in 1947-48, 31 in 1948-49, 61 in 1949-50, 68 in 1950-51 and 84 in 1951-52. It is remarkable that the Bombay Flying Club made the largest contribution to the training of both 'A' and 'B' pilots during this period. 177 obtained their 'A' licence and 62 their 'B' licence from this club. The field was becoming congested. According to the figures given by the D.G.C.A., 694 'B' licences were issued between 1946 and 1951. 458 were issued to Indians and 236 to pilots of other nationalities. Of these, 458, 258 were trained at the Flying Clubs and 46 at the Civil Aviation Training Centre, Allahabad. Of the remaining 154 'B' licences issued in India, 80 licences were issued to pilots released from the Indian Air Force and 70 to those who were trained abroad, mainly at the Air Service Training Ltd., at Hamble, in the United Kingdom. This over-production of 'B' pilots was creating unemployment and we understand that more than 100 'B' pilots are unemployed today.

FINANCIAL ASSISTANCE GIVEN TO FLYING CLUBS

61. Financial help to the Flying Clubs in the United Kingdom.—Flying Clubs did not come into existence even in the United Kingdom without financial assistance from the State. Such financial assistance, at the earlier stages, took the form of grants for the purchase, maintenance and replacement of aircraft and equipment, and a bonus for each pupil who obtained a pilots licence. Six light aeroplane flying clubs came into existence in the U.K. with such financial assistance from the State in 1925. The object was to popularise civil flying and to encourage airmindedness amongst the general public at reasonable cost.

62. The Flying Clubs continued to be subsidised, under various schemes, by the State, until the outbreak of the war in 1939. These schemes were based, in the main, on the defence value of the Clubs as providing cheap facilities for people to learn to fly, thus "constituting a potential reserve on which the Royal Air Force could draw in emergency, though no obligation for military services was imposed." In 1938, the Civil Air Guard Scheme came into operation. As the Clubs had to give flying training to the members of this organisation, it widened the basis of their flying activities. As the grants given for such training were higher than the scale of the previous subsidies, it went a long way in promoting the economic stability of the Clubs.

63. **Other Forms of help in the United Kingdom.**—A special Advisory Committee, appointed by the Minister of Civil Aviation in the U.K., reported in 1947 on the working of the light aeroplane clubs. That committee was of the opinion that it was "virtually certain that without State assistance, all but a very few will be forced to close down in the near future". Although the Government did not accept the recommendation of that Committee for financial assistance to the Flying Clubs, other methods have been adopted by that Government to help the Clubs financially. It is the important need of all Flying Clubs that they should secure greater utilisation of their aircraft, so that they may be able to spread their overhead expenses. They were able to promote a greater utilisation of their aircraft as they were called upon to carry on the flying training of a distinct group of cadets. The Clubs were asked to train the cadets of the Air Training Corps and the members of the Air Sections of the Combined Cadet Force. The Clubs received payment for each cadet trained at a rate per flying hour agreed between the Air Ministry and each Club and embodied in a contract. Two hundred cadets of the Air Training Corps were to be trained in the first year. That number has been raised to 500 in the year 1952-53. The cost of each cadet trained was about £ 145. This was payable by the Air Ministry to the Clubs. The scheme has been regarded by the Air Ministry as a great success, and that Ministry is considering its expansion. This new training scheme has proved of great financial assistance to the Flying Clubs in the U.K.

64. A new Air Ministry scheme to aid Flying Clubs was announced last month by the Ministry of Civil Aviation. They are about to introduce a complementary scheme whereby Club resources would be used to give more stimulating and profitable air experience to selected cadets of the Air Training Corps and Royal Air Force sections of the Combined Cadet Force than the boys could expect to get from passenger flights in Royal Air Force. This new activity will further assist the Clubs to promote their economic stability. It will thus be observed that even in a country, where civil aviation is highly developed, ways and means are evolved afresh to give substantial financial assistance to the Flying Clubs in the country. It is important to bear this in mind in considering the question of financial help which the Goverment should give to the Flying Clubs in India.

SUBSIDIES GIVEN TO FLYING CLUBS IN INDIA

65. **Sources of Subsidy.**—Financial assistance has been received by the Flying Clubs from their very start. There are two sources from which they have been receiving financial help. The first source is the Central Government. That Government has been subsidising all the Flying Clubs in India. The second source is the Governments of the States in which the flying clubs are situated. Eight flying clubs out of the ten have been receiving subsidies from the States. The States which give subsidies are Bombay, Madras, Travancore & Cochin, Mysore, Uttar Pradesh, Madhya Pradesh, Punjab, Bihar and Orissa. It is important, however, to remember that while the entire amount of the subsidy given by the Central Government is for meeting the cost of flying, a substantial portion of the subsidy given by

all the States except Madras. Punjab, Travancore-Cochin and Mysore has to be used for meeting the cost of the services which the clubs have to render to the State Governments. The inclusion of this cost of service in the expenditure of the flying activities of the clubs which receive subsidies does sot, therefore, give a correct picture of their cost of flying per hour.

66. **Subsidy from the Central Government.**—The amount of help given by the Central Government was steadily on the increase. It went up from Rs. 35,000 in 1928-29 to Rs. 1,36,650 in 1931-32. There was a slight decline in the next year, but the amount given by way of subsidy in 1934-35 was Rs. 1,19,900. The clubs were, however, making a fairly satisfactory progress in regard to their membership, the number of aircraft available to them, the pilots trained by them and the hours flown by them, as will be seen from the figures given below:—

Year	Membership	Number of aircraft	Pilots trained abinitio	Hours of flown
1930	1,596	19	93	7,542
1931	1,880	20	113	9,072
1932	1,538	26	85	9,717
1933	1,750	29	68	10,995
1934	1,784	33	88	11,780
1935	1,690	32	77	10,860

67. The Clubs were given financial assistance from year to year till 1935. They were, therefore, not able to plan for more than one year. The Government therefore introduced a revised system of subsidy which would remain in force for a period of three years, from 1935-36 to 1938-39. This new basis of subsidy enabled the flying clubs to reduce their club charges from Rs. 45 to Rs. 35 per hour. Clubs were, however, experiencing difficulties in securing pupils who could afford to pay the cost of training at Rs. 30 per hour. A new scheme of subsidy was, therefore, introduced to cheapen the cost of training at the clubs. The Government also purchased 7 Tiger Moth aircraft at a cost of Rs. 1,20,000 and gave one aircraft on loan to each of the 7 clubs in existence at that time. The normal peace-time flying activities of the club were discontinued during the period of the war. The clubs, however, resumed their usual flying activities from 1946.

68. **New policy of liberal help from the Centre.**—A new policy of liberal financial help was introduced during the post-war period. It came into operation from the year 1946-47. It is remarkable that the amount of help received by the clubs, under the new policy, went up from nearly Rs. 7,00,000 in 1946-47 to a little over Rs. 12,00,000 in 1950-51. In addition to the grant of a fixed subsidy of Rs. 40,000—later reduced to a sum of Rs. 30,000 given to the clubs per annum to meet their overhead charges, the Central Government have been giving them a flying subvention of Rs. 20 per hour flown, an overtime allowance of Rs. 5 for every hour flown in excess of 1,000 hours, and a bonus of Rs. 250 for every 'A' licence issued. In addition to this, the Central Government have loaned 41 aircraft to the different clubs to assist them in increasing their flying activities. In some cases, the Central Government have also made capital grants.

They have provided buildings and hangars for facilitating the activities of the clubs. They also exempted the aircraft of the clubs from landing fees at their home ports. The total amount of help given by the Central Government comes to a little over Rs. 54,00,000 during the period of six years, ending the 31st March, 1952. To this must be added, the amount of a little over Rs. 2,61,000 given by them as special grants. This substantial help enabled the clubs to widen their activities during the post-war period and it is remarkable that the number of hours flown at the clubs went up from a little over 10,000 in 1946-47 to a little over 35,000 in 1950-51.

69. **Subsidy Agreement—Extent of Control.**—We have already stated that the entire amount of the subsidy received from the Central Government was to be used towards meeting the cost of flying at the Clubs. Each club had to enter into an agreement with the Central Government for the purpose. The Director General of Civil Aviation enjoyed very wide powers under this subsidy agreement. He had the right to nominate two persons to the Managing Committee of the Club. It is true that they do not constitute the majority but would be able to guide the policy of the club. The Chief Pilot Instructor and the Chief Ground Engineer of the Club cannot be appointed without his approval. Not only had he the right to inspect the accounts of the Club, but he had also the authority to prescribe the form in which they should be kept. Clubs can only charge such subscription to their flying and other members, and levy such fees for ground instruction as may be laid down by him. The Club cannot undertake at any time the training of a greater number of commercial pilots than may be approved by the D.G.C.A. in writing. Clubs must insure their aircraft with such companies as may be approved by him. The Director General had the right to ask the Clubs to credit such sums to their replacement fund as he may prescribe. Clubs must observe and comply with such rules, regulations and instructions as may be promulgated by him from time to time for the conduct of the Flying Clubs. The Director General had also the right to terminate the agreement if he found that the objects of the Club were not carried out to his reasonable satisfaction, or if he was not satisfied with the financial position or management of the Club, or if there was any breach or non-observance on the part of the Club of any of the obligations set forth in the agreement. It is not difficult to realise that the obligations thus imposed on the clubs under the agreement gave all possible power to the Director General to enforce his will on them and compel them to carry out all his directions and orders in the working and flying activities of the Club, so that the objects with which the subsidy was given to the Clubs could be effectively realised. It will be agreed by all responsible people that this fundamental consideration should not be lost sight of when they have to examine the criticism that has been made against the working and management of the Clubs in this Country.

70. **Subsidy from the State Governments.**—So far as the State Governments are concerned, the total amount of the recurring financial help given by them, during the period of six years, came to Rs. 36,43,497. The non-recurring grants during the same period came to a little over Rs. 9,54,000. The subsidy given by the States imposes

a number of obligations on the flying clubs to render services to those States. The Hind Provincial Flying Club received Rs. 21,38,650 as subsidy and a capital grant of Rs. 5,69,528 for the purchase of aircraft, spares and equipment from its Government. This represents nearly 60 per cent. of the total of the subsidy and capital grants given by all the States in India. The services which the Hind Provincial Flying Club has to render to its State are, therefore, greater than those rendered by other clubs. The club has to provide to the State Government when required, free of charge, aircraft in perfect flying condition. It will have to maintain and house free of cost all the aircraft purchased by the Government and made over to the club for Government use and also to provide one or more pilots, free of charge, for flying the same. It is, therefore, difficult to ascertain the amount which is actually left to the club for meeting the cost of its flying activities out of the sum which it has received as subsidy. The Bombay Flying Club received Rs. 6,30,054 as subsidy from the Bombay State. The club has to hangar, service and maintain all aircraft belonging to the Government and the Home Guards and to supply the Chief Pilot Instructor or other Pilots for flying them when required. The club has to train 2 or 3 pilot-instructors on Government aircraft and to bear the entire cost of operations, including the cost of insurance and the replacement of spare parts during the period of training. Some of the obligations more or less of a similar nature, referred to above, have been imposed by their Governments on the Bihar, Orissa and Madhya Pradesh Flying Clubs. It may be mentioned that the Punjab State gave a capital grant of Rs. 3,00,000 for the rehabilitation of the Northern India Flying Club. So far as the Madras State is concerned, it has not called upon the Madras Flying Club to render any service to it as a condition of the subsidy granted to it. On the contrary, it has given further encouragement to the club in the fulfilment of its desire to give flying training to college students of the State at a cheaper rate. The Government has endorsed the proposal of the Madras Flying Club that these students should be charged only Rs. 10 per hour as against Rs. 25 per hour which is in force at present. The difference of Rs. 15 should be made up in the shape of a further flying subvention of Rs. 10 from the Centre and Rs. 5 from the State. The Madras Government have informed the Ministry of Communications that they would be prepared to increase their present flying subvention from Rs. 10 to Rs. 15 on the understanding that the total flying subvention does not exceed Rs. 50,000. The amount of flying subvention given by the State has varied from Rs. 19,000 to Rs. 25,000 during the last three years.

71. **Policy of subsidising the Clubs should continue.**—We have no doubt that the financial assistance which the flying clubs have received during the post-war period from the Central Government and the States has enabled them to widen their activities and thus play an important part in the field of civil flying during a period of vital importance in the history of civil aviation in this country. While we propose to deal with this question of financial assistance in the Chapter on the role which the flying club should play in the future, we recommend that the Central Government and the States should continue in the future their policy of subsidising the flying clubs in India.

72. **Cost of flying per hour.**—We have been told by the department of the D.G.C.A. that the cost of flying per hour at the flying clubs is very high. In judging this question, it should, however, be remembered that there are certain factors over which the clubs can have no control. They are principally the type of aircraft used. The number of pupils who offer for training, the number of hours which these pupils will fly, and the consequent incidence of the utilisation of the aircraft on the overheads of the clubs. Given the same set of circumstances, it is estimated that the cost of flying per hour, in a club flying five thousand hours per year, will be less by about Rs. 20 than the cost incurred per hour, by a club flying only 3.500 hours per annum. Another factor which affects the cost of flying at the different clubs is the amount of depreciation which has to be provided for. Under the instructions from the D.G.C.A., clubs have to provide depreciation at 25 per cent of the original cost of the aircraft owned by the clubs. The clubs, however, have not to provide any depreciation over the aircraft loaned to them. We find from the figures supplied to us, that on the 31st March, 1952, 89 aircraft were owned by the clubs, of which 73 were serviceable and 16 unserviceable. Forty-one aircraft were, however, loaned to them by the Government. There was no uniformity in regard to the number of aircraft owned by the clubs or the number loaned to them. For instance, while the number of aircraft owned by the Bombay Flying Club and the Hind Provincial Flying Club was 13 and 32 respectively, the number owned by other clubs varied from 2 to 6. It is, therefore, obvious that there cannot be any uniform incidence of depreciation. We find that while the depreciation provided by the Hind Provincial Flying Club came to Rs. 87,908 and that provided by the Bombay Flying Club came to Rs. 60,302 the amount provided for a similar purpose varied in case of other clubs from Rs. 2,500 to Rs. 21,736. It will, therefore, be appreciated that the cost of flying per hour will be greater in a club working principally with its own aircraft than that incurred by a club working principally with the aircraft loaned to it by the Government. This makes it difficult to arrive at a fair and equitable basis for comparing the flying cost per hour of different clubs.

73. Moreover, the obligations which have been imposed on certain clubs, receiving financial help from the Governments of their States, for maintaining the aircraft owned by that State free of cost, have, however, further complicated this matter. The expenditure incurred by the clubs for meeting these obligations have been included in the total expenditure of the clubs on which the cost of flying per hour has been based. The clubs have not given separate figures in their accounts of the amounts actually spent by them to meet their obligations and to render services to their State in accordance with the agreements existing between the clubs and the States. The cost of maintaining the State aircraft along has varied from about Rs. 30,000 in the case of the Bihar Flying Club to a little over Rs. 1,02,000 in the case of the Hind Provincial Flying Club.

74. It is, therefore, difficult to determine the actual cost incurred by the clubs purely for the flying operations which they have to carry on for training their pupils. In view of the different factors which affect the cost of the working of different clubs, as mentioned above, we are not surprised that there should be a substantial

difference in the cost of the flying operations of these clubs. From the data supplied to us, we find that while the cost per hour of flying at the Madras Flying Club was Rs. 70·77 in 1950-51, it touched the figure of Rs. 157·06 at the Hind Provincial Flying Club. This cost of flying per hour in 1950-51 varied from Rs. 79·93 at the Bengal Flying Club, to Rs. 163·23 at the Orissa Flying Club. The average cost of flying per hour at all the clubs for the period of six years shows a remarkable variation. From Rs. 58·26 per hour in 1946-47, it rose to Rs. 146·68 in 1947-48. It fell to Rs. 120·58 in 1948-49 and to Rs. 85·08 in 1949-50. It went up again to Rs. 101·50 in 1950-51 and Rs. 105·72 in 1951-52. These variations have been due to a number of circumstances, some of which the clubs can control, while the others are beyond the control of the clubs. In view of what we have stated above, we must confess that neither have we got the right data nor have we got the scientific basis for determining the actual cost of the flying operations of the pupils at the different clubs in India. We are, therefore, not in a position either to contradict or to confirm the criticism of the Department of the D.G.C.A. that the cost of flying per hour, at the flying club is, very high. It is, however, remarkable that the cost of training a pupil at the Civil Aviation Training Centre run by the Government, was a little over Rs. 52,000 which included the cost of training a pupil on an average of 170 hours on Chipmunks 20 on Ansons and 4 on Dakotas in the year 1951-52. This cost of Rs. 52,000 includes provision both for depreciation and insurance. It, however, has been arrived at without the provision of any amount to the credit of the Replacement Fund to which the clubs are under an obligation to contribute annually, in addition to the provision for depreciation and insurance, such sums from their revenues as may be prescribed by the D.G.C.A. It is true that it was high because it had a small number of pupils and consequently it had to fly, comparatively speaking, for a smaller number of hours. The circumstances which affected the cost of flying at the C.A.T.C. existed at the clubs also. Neither can we, therefore, make any useful comparison between the cost of flying at the clubs with the cost of flying at the Centre, nor can we, in view of the circumstances mentioned above, arrive at a fair, equitable and scientific basis for determining the cost of flying at the clubs to enable us to judge whether it is high or is fair and satisfactory. We have, therefore, come to the conclusion that we should, after taking all relevant circumstances into consideration, evolve the standard cost of flying at the clubs, and we shall refer to this subject in the Chapter where we shall deal with the role which the clubs should play in the field of civil flying in the future.

75. **Ground instruction and flying training.**—We were not satisfied with the arrangements made at the clubs for giving instruction in ground training. Classes were organised in some of the clubs for that purpose. They did not, however, come up to the standard which we expected of them. A large number of the trainees at the flying clubs had, therefore, to proceed to the Flying School at Allahabad for their P.G.T. course. We were told that their number came to 162 up to 1951-52.

76. As regards flying training, sufficient importance was not attached to the necessity of proper briefing and de-briefing of the

trainees before and after their flight exercise. During the course of the evidence, some witnesses expressed the opinion that the pupils trained at the C.A.T.C. were better than those trained at the flying clubs. Some held a contrary view. Broadly speaking, the evidence has disclosed the fact that there was very little to choose between the quality of flying training given at the clubs and that given at the Flying School at Allahabad. It will be appreciated that the Committee cannot dogmatise in a matter like this. The Committee, however, had the advantage of witnessing the systematic manner in which all details of flying training including briefing, de-briefing, and comprehensive instruction in theory of Flight and Airmanship, were imparted at No. 2 Air Force Academy of the Indian Air Force at Jodhpur, with which it was very much impressed. On a careful review of the whole situation, the Committee has come to the conclusion that there is considerable scope for improvement in the system of flying training given both at the Flying Clubs as well as the Flying School at Allahabad.

77. **Flying Instructors.**—While some of the flying instructors in the past as well as at present at the flying clubs possess great ability and have shown high competence for imparting training to the pupils under their charge, the Committee do feel that all the instructors do not come up to that standard. It is, therefore, desirable that the flying instructors should be so trained as to be able to implement the technique of training employed at a service Flying School like the one at Jodhpur. We, therefore, strongly recommend that the flying instructors should undergo a course of regular training for the purpose of ensuring a uniformity of standard at the Flying Instructors' School of the Air Force at Ambala, and it should be a condition of their employment that they should undergo periodically a refresher course and a categorisation test at that school.

78. **Joy Rides.**—At the time the Government submitted their memorandum for financial assistance to the four light aeroplane clubs in India in 1928, they stressed the fact that "the encouragement of private flying is of considerable importance in developing air sense among the public and familiarising the community with the possibilities of air transport". One would have, therefore, expected that the Flying Clubs would have been encouraged by the Director General of Civil Aviation in attracting the people to go in for joy rides. Details of the joy rides given from the time the Clubs started up to now are not available. From such data of the joy rides as has been obtained for the last three years, we find that only 1963 people could be induced to go in for these joy rides at all the Clubs in India during this period. This is in sharp contrast with 11,500 passengers taken for joy rides in 1951 by the Swissair alone in a comparatively small country like Switzerland. The D.G.C.A. will not permit the Flying Clubs to use the aircraft loaned to them for this purpose. Moreover, the aircraft owned by the Clubs and used for joy rides had to pay landing charges even at their home airports. It is difficult to say how far these directions of the D.G.C.A. were responsible in restricting the number of people going in for joy rides in the country. But we cannot help saying that a very useful and effective machinery for developing the potential air sense of the people was not fully used. The [illegible] broadly speaking,

did not actively interest themselves in furthering the air-mindedness of the people by inducing them to go in for joy rides. As the Government are anxious for encouraging air-mindedness among the youth of the country, we recommend that all possible encouragement should be given to the Flying Clubs in the future to use the aircraft whether owned by them or loaned to them, for the purpose of joy rides, consistent with their primary responsibility for the training of pilots.

79. **Exemption of private owners' aircraft from landing and hangaring charges.**—The flying of aeroplanes for pleasure by people who own them is another means of developing the potential air sense of the community. There are very few people in the country who own their own aircraft. Aeroplanes belonging to private individuals are, however, a common sight in the hangars of the Flying Clubs in the U.K. and the Continent. It is, therefore, desirable that the cost of such pleasure flights should be kept at as low a level as possible. It has been brought to our notice that the request for exempting private owners of aircraft from landing and hangaring charges was turned down by the D.G.C.A. as it was considered that the charge of Rs. 80 per quarter for hangaring the aeroplane and the charge of Re. 1 for landing the same were reasonable and were not more than what a private car owner pays for his garage. The question, however, is not to be looked from the angle of making money for the Government. The problem is to be viewed from the viewpoint of inducing more people to own their aeroplanes, and more people to go in for pleasure flights. As exempting private owners' aircraft from landing and housing fees at their home port is likely to develop this type of sport flying, we recommend that neither landing nor housing fees should be charged to aeroplanes up to a gross weight of 5,000 lbs. owned by private individuals and flown merely for pleasure and not for business at their home ports. We would like further to recommend that in asking the private flier to comply with any new directives, the Government should bear in mind that it does not impose new financial burdens on him.

80. **An objectionable feature of the subsidised training in civil flying.**—One of the important features of the subsidised training for the commercial pilots licence either at the Flying Clubs or at the Centre at Allahabad is that the trainee has to enter into an agreement with the Government and to bind himself to accept, after qualifying as a 'B' licence pilot, such employment as may be offered as a pilot or in any other agreed capacity for a period of 3 years, under arrangement to be approved by the D.G.C.A. Moreover, if the trainee commits any breach of the agreement during and for 3 years after completion of his training, he and his surety will be liable jointly and severally to pay forthwith and refund to the Government, on demand, all payments made by the Government, on his account in respect of his training at the said Flying Clubs, not exceeding Rs. 6,000 along with interest thereon at fixed Government rate then in force for Government loans. Such a drastic penalty clause is inconsistent with the modern concept of the responsibility of the State to provide facilities for its citizens both for general and technical education. For instance, the Government provides educational facilities on the training ship "Dufferin" for young cadets, who desire to

become Executive Officers, in the Merchant Navy of India. The Government have been spending at present over Rs. 12,000 per cadet for giving such training. Neither is any obligation to serve in the Merchant Navy or in any other capacity as the Government may direct, nor is any penalty for refunding the amount spent for his training, imposed on him. It will be significant to note that the Committee on Recruitment, Training and Licensing of Personnel for Civil Aviation in the United Kingdom, referring to State scholarships for initial training, in their recent report submitted in 1948, expressed their considered opinion against any such undertaking or becoming a party to the acceptance of any such penalty clause on the part of those who would benefit by such scholarships. India aspires to become a real welfare State. The State has, therefore, to accept its fundamental obligation to provide facilities for all forms of training for the people of the country, whether it is academic, technical, scientific, vocational or any other complicated form of training. The imposition of obligations and penalty is obviously inconsistent with the recognised responsibility for such training in a welfare State. We, therefore, recommend that pupils undergoing training either for private pilot's licence or for commercial pilot's licence should neither be under an obligation to sign agreements nor be subjected to restrictions and penalty as are imposed on them at present.

81. **Management and Control of Clubs.**—The activities of a club can be broadly divided into two categories—social and flying. The Committee is concerned mainly with the flying activities of the club. The Committee realise that while the flying activities of the club should be economically distinguished from its social requirements, they cannot conceive that these activities could always be kept in two water-tight compartments. Well-organised and well-conducted social activities can become a source of strength and can impart drive to the flying activities of the club.

सत्यमेव जयते

82. Clubs are managed by their Managing Committees elected by their members at their Annual General Meetings. Under their agreement with the Central Government, such elections will have to ensure that not less than one third of the members thus elected shall be active flying members. The Director General of Civil Aviation has, however, the right to nominate two members on the Managing Committee. In some cases the State Governments also enjoy the right of nominating a member to that body. The wide powers which the Director General of Civil Aviation enjoys in directing and controlling the activities of the club as mentioned in paragraph 22, coupled with the presence of his nominees on the Managing Committee, secures for him an effective voice in the management of the affairs of the flying clubs in India. It is, however, contended that the clubs have not been able to secure the economic utilisation of their fleet and that the Director General of Civil Aviation has not been able to enforce his wishes for all possible economies in the management of the club. There is also a general complaint against the trainees utilising their influence not in the best interests of the club by their votes. This is what we have gathered from the papers which have been placed before us by the department of the D.G.C.A. and from the talks which we had occasion to have with the officers of that department. Some witnesses who have been members of the

flying clubs have corroborated some of these complaints. The findings of the recent Committee of Enquiry in the affairs of the Bombay Flying Club revealed both lack of harmony as well as lack of efficient and economic management in the working of that club. The Committee realise that they are not sitting as a judicial body examining witnesses in regard to the affairs of the club, analysing, sifting and assessing the evidence for framing their conclusions in regard to the various complaints made against the clubs. They have, however, gone into the question as practical men, and they have to offer the following observations:

83. The utilisation of the aircraft of a club will depend upon the number of pupils that offer for training and the number of hours for which they propose to fly. The Committee cannot, therefore, condemn the management of the club if the utilisation of their aircraft does not reach the proper standard. That is a matter beyond the control of the management of the club.

84. As regards promoting economies, it may be a matter of opinion as to what wages should be paid to the staff employed by the clubs. It is not so much the question of management as the assessment of the values of the employees working under modern conditions. We would, however, agree with the general view and recommend that the trainees should not be given the right to vote as long as they are trainees. That will contribute to the removal of undue influence, if any, that may have been exercised by the instructors and will also prevent the exploitation, if any, which may have been exercised by parties who may have desired to obtain power in the working of the clubs.

85. The Committee have noted that some of the most distinguished and leading men in the country—from the President of the Union, the Prime Minister, the Chief Ministers of States and the Judges of the Court—have been connected with the flying clubs either as their Patrons or their Presidents, or in some cases, as the Members of their Managing Committee. Whatever may have been the justification in the past for investing the D.G.C.A. with the wide powers which he enjoys in directing the affairs of the club, the Committee is convinced that if the leading public men connected with the club are to be induced to wield their influence and give their guidance and advice in managing the affairs of the club and to put them on economic and efficient footing of modern concept, the power should be left in their hands without any interference or dictation from outside. We are aware of the fact that both the Central and the State Governments would like to be satisfied that the large amount of subsidies which they give to the clubs are properly and economically utilised. The way to achieve that end is not to invest wide powers in the hands of a single individual. The Managing Committee of the clubs should be given fullest opportunities and power to act as a responsible body. We would like the Aero Club of India to act as a liaison body between the Clubs and the Government just as the Royal Aero Club has been doing in the United Kingdom. We cannot, however, suggest that the Aero Club of India, in the present stage of its development, should be called upon to undertake these responsibilities. Such powers would have to be given to the Civil Air Board which we have proposed in a subsequent Chapter,

whereon all important interests will find a representation. There is no doubt in our mind that the constitution of such a Civil Air Board is vital in the interests of the progress of civil aviation in the country on sound and scientific lines.

86. **The future of Flying Clubs should be assured.**—The Flying Clubs have been in existence now for nearly a quarter of a century. Not only have they trained sport fliers, but they have also provided facilities for pupils to obtain their 'B' licence. From the data which have been given to us, we find that 1378 pilots have obtained their 'A' and 'A-1' licences and 315 have obtained their 'B' licence from the Clubs upto the 31st March, 1952. It is remarkable that when the Indian airline companies, with their large fleet, were experiencing very acute shortage of Indian pilots to man their planes', particularly during the years 1949-50 to 1951-52, the Clubs were able to produce 213 such pilots for the requirements of the country. They have, therefore, played a welcome part in meeting the demands of civil flying training during the critical period in the history of civil aviation. We have called it a "welcome part" advisedly. If the training given to this large number of pupils for obtaining the 'B' licence was not essential in the interests of the country, it was open to the D.G.C.A., under the wide powers which he enjoyed, to limit and restrict that number. The fact that he did not choose to do so only confirms the view that the clubs were doing their best in bridging the gap between the number of Indian pilots which the airlines required and the number of Indian pilots that were available in the country.

87. The activities of the Flying Clubs did not end with the training of these pilots. As we have stated above, the Delhi Flying Club carried the mails for the Government of India. Several other clubs have assisted the State Governments in flying their officers from one place to the other in the aircraft owned by the States. The Hind Provincial Flying Club has flown the Ministers and officials throughout the length and breadth of the Uttar Pradesh on every possible occasion, both on twin-engined as well as single-engined aeroplanes. It is also to the credit of that Club that in 1951, they lent the services of two of their pilots along with two Piper Cubs for the evacuation of persons marooned by heavy floods in Assam. These planes and pilots succeeded in rescuing persons that were marooned in the middle of the Brahmaputra for six weeks. Within six hours of the evacuation of the last man, the island was washed away by the stream. For the first time in the history of civil aviation in India, the National Air Rally and Races were organised by the Aero Club of India. The first Rally was held at Barrackpore in 1950—the home port of the Bengal Flying Club, and the second one at Kanpur—the home port of the Hind Provincial Flying Club. For the first time in the history of civil flying in India, a lady pilot, member of the Hind Provincial Flying Club, took part in the Air Rally at Calcutta and carried away a prize. Another lady member obtained a similar success at the Rally at Kanpur. The Communications Ministry also entrusted to that Club the flying training of 18 cadets who had come from Indonesia to India for that purpose. These different activities of the Flying Clubs in India will, no doubt, convince every responsible and right-thinking man in the country that they are not only a great storehouse of enthusiasm and inspiration for drawing out the potential

air sense of the people of the country, but they will also, with adequate financial help, and adequately supported and helped, play a magnificient role in the future in popularising flying, spreading air-mindedness and building up abiding traditions in the field of civil aviation. We, therefore, strongly recommend that all possible steps should be taken to keep the institution of the Flying Clubs alive and in full vigour in the country in the future as in the past.

CHAPTER III

CIVIL AVIATION TRAINING CENTRE, ALLAHABAD

88. We have been asked to study the working of the Civil Aviation Training Centre and to submit proposals for its improvement. It is, therefore, necessary to examine the circumstances under which it came into existence and the object for the achievement of which it was established:

89. **Place of Civil Aviation Training Centre in Post-war Plan.**—The proposals for the organisation of a Civil Aviation Training Centre were first formulated in 1944-45 in the Post-war Plan for education in aeronautics and training in aviation. It was considered desirable that, in order to train personnel for the expanding needs of the Air Transport industry, a central air-service training centre should be established consisting of a flying school for training pilots, an engineering school for training ground engineers and mechanics, a radio school and an aerodrome school for air traffic control staff. In view of our limited terms of reference, we have only to examine the working of the Flying School and offer our recommendation in connection with the role it should play in the future.

90. **Object of the Flying School.**—Sound and thorough training in the art and science of flying is fundamental to the success of civil aviation. It is vital for the safety of the travelling public as well as of the aircrew. The object of the Flying School was to provide facilities for giving such training both to pilots and navigators. As it was realised that the country could not afford to adopt a policy of unlimited expansion of the activities in the field of aviation, it was recognised that the prospects of future employment should have a determining voice in the number of the young men that should be trained as pilots.

91. **Original programme of training to be given at the Flying School.**—The Government of India sanctioned the scheme for the establishment of the Flying School and the training to be given therein, on the 16th July, 1948, for a period of 3 years at the start. The position was to be reviewed at the end of that period. The Government laid down that "flying training up to the Transport Pilot standard will be in three stages". These three stages as laid down by the Government were as follows:—

92. **Pre-entry Training.**—"(i) Pre-entry training to the extent of 100 hours instructional flying to each pupil will be given at the flying clubs, who will be required to give first priority to this task

and, for each pupil so trained, will receive a bonus of Rs. 500 instead of the bonus of Rs. 250 for each trainee obtaining an 'A' licence under the existing Flying Club Subsidy arrangement. In addition to the existing scale of financial assistance from Government each club will receive not less than four Chipmunk or Tiger Moth aircraft from a pool of training aircraft maintained by the Civil Aviation Department. The Government of India will be responsible for the periodical overhaul and repair when necessary for these aircraft. During the first year the output of the Clubs will be 70 "pre-entry" pupils and during each of the next two years roughly double the number"

93. **Flying School.**—"(ii) These pre-entry pupils will then be admitted to the Flying Training School for instruction up to the 'B' licence standard in a course occupying about 6 months and including 50 hours single-engined flying. For the first year, the School will be equipped with 12 twin-engined and 12 single-engined training aircraft, will have 5 Flying Instructors (including a Chief Flying Instructor) and 7 Ground Instructors and would be expected to turn out 56 'B' Licence Pilots. For the second and third years, the output of Pilots would be doubled and the staff and equipment of the School will be based on the experience gained during the first year. Each trainee would be charged a fee of Rs. 5,000 of which Rs. 2,500 will be returnable to him when he qualifies for a 'B' Licence and would give an undertaking to accept employment under Civil Aviation for a period of 2 years and to enroll, if required by Government, in a Reserve or Auxiliary Service of the Indian Air Force".

94. **Conversion Training.**—"(iii) Conversion training of the Pilots trained in the Flying School up to 'B' Licence standard to different types of modern transport aircraft, would be the responsibility of the Operating Companies, who by employing these Pilots as Second Pilots would enable them to fulfil the requirements of the Indian Aircraft Rules in respect of air experience before qualifying as Captains".

95. **Growing demand for qualified Pilots.**—As the number of Airline Companies had increased and as 9 companies were given Licences to fly in India the demand for qualified Pilots was rapidly growing in the country. The acute shortage of this operational personnel became, therefore, a matter of growingly serious concern. The Director-General of Civil Aviation in his letter dated the 8th January, 1948, to the Government emphasised the fact that "India does not possess, and will not for 4 or 5 years develop, a regular outflow of trained personnel from Air Force service seeking employment in civil aviation, as is the case in more advanced countries. A large expenditure on training for civil aviation is, therefore, unavoidable. It is justified not only for the progress of public air transport and civil flying generally, but also for the creation of trained Reserves to support the Indian Air Force in a time of emergency"

96. The training of 280 Commercial Pilots during a period of 3 years at a Government Flying School established for that purpose became, therefore, the vital need of the hour, in the opinion of the Authorities. This was the original programme laid down in the

Scheme which the Government approved and it was for the training of these 280 Commercial Pilots that the Flying School was established in the first instance for a period of 3 years.

97. **Programme actually executed.**—The Flying School was started in September, 1948. A course for the training of Assistant Pilot Instructors from the trainees of the Flying Clubs was started. Twelve Instructors were trained in 1948 and six in 1949. As regards the training of pilots, the figures given below will show that the number actually trained during the first four years was far below the number put down in the original programme, on the basis of which the scheme of the Flying School was sanctioned by the Government.

Year	No. laid down in the original programme, on the basis of which the scheme for the establishment of the Flying School was sanctioned	No. actually trained
1949-50	56	14
1950-51	112	20
1951-52	112	13
1952-53	60	4 (under training)

It will be noted that as against the original scheme of training 280 Pilots for 'B' Licence in the first 3 years, the Civil Aviation Training Centre was able to train only 47, of which 46 got their 'B' Licence. We are informed that the original programme was later revised. A programme to train 40 Airline Pilots in 1951-52 and 60 in each of the 2 years, 1952-53 and 1953-54, was laid down. It was also considered likely that pupils from the neighbouring countries might also come for training at the C.A.T.C. Only 13 pupils were trained against 40 in 1951-52 and only 4 against the proposed 60 in 1952-53. Owing to the large number of unemployed Pilots in the country, there is no possibility of training 60 pupils as pilots in 1953-54.

98. **Justification for the continuance of the Flying School.**—We have been told that the Finance Ministry were considering in January, 1951, how economies could be effected in the expenditure of the Government of India, one of the suggestions made by that Ministry was that the Civil Aviation Training Centre at Allahabad should be closed. It is significant that the D.G.C.A. justified the continuance of the Flying School at that time and remarked that "on the basis of 40 pilots the total all-inclusive cost per pilot comes to Rs. 17,500 per annum, of which he will pay Rs. 4,500 leaving a net total cost of Rs. 13,000 on Government. If the number of trainees were 60 then the cost of Rs. 1,50,000 for overhaul and repairs and the cost of establishment of Rs. 92,000 will be distributed over a larger number of trainees, thereby reducing the cost per head still further". It is difficult to understand how in the face of actual experience of training a very small number of Pilots at the Flying School both in 1949-50 and 1950-51, the D.G.C.A. could have made the above statement, of training 60 Pilots per annum at the School for justifying the continuity of that School on economic grounds. As a result of

the careful study of the data that was placed before us, we are constrained to remark that proper thought was not given to the possibility of the Pilots that would be accepted for training, in laying down the programme, which should be the basis for the functioning of the School in the zeal for seeking arguments for its continuity. The proposal for continuity showed an unjustifiable lack of the realities of the situation. The original period of 3 years for the functioning of the School was first extended to 29th February, 1952, and later on to 28th February, 1953. The Flying School has not yet, therefore, become a permanent Institution for providing facilities for training in civil flying in the country.

99. **'B' Licences issued for less than the statutory number of 200 solo hours.**—The Indian Aircraft Rules, 1937, make it obligatory on an applicant for the grant of 'B' Licence that he shall produce evidence of flying experience of not less than 200 hours of solo flying during the 3 years preceding the date of his application. It was, therefore, surprising as we shall show below that 'B' Licences were issued to the trainees of the Flying School at Allahabad for less than 135 solo hours and in one case even less than 130 solo hours.

100. The first batch of "pre-entry" trainees was selected in March-April 1949, and posted to various Flying Clubs for the first stage of their training. Pending the completion of the training of this "pre-entry" batch at the Clubs, 15 trainees with flying experience of 100 hours were admitted at the C.A.T.C. for a course of advanced training up to 'B' Licence standard. All these trainees successfully completed their course, except one who met with a fatal accident. The average solo hours flown by these 14 trainees to obtain their 'B' Licences came to 208 hours and 23 minutes.

101. In March, 1950, 22 pupils who had completed their "pre-entry" training at the Clubs joined the Centre for their advanced training. All these trainees except 3 who joined the Air Force were given their 'B' Licence. It is significant to note from the figures which were placed before us by the Principal of the Training Centre at Allahabad that 'B' Licences were issued with the following solo hours' experience:—

In 1 case, less than 130 hours
In 3 cases, less than 135 hours
In 6 cases, less than 150 hours
In 7 cases, less than 160 hours
In 2 cases, less than 180 hours
In 1 case, 202 hrs. 30 mins.

It is surprising that although in 19 cases the solo flying experience was less than 200 hours and in 17 cases although it was less than 160, 'B' licences were issued to them. We were told that the result of the pre-entry scheme was not encouraging according to the Director-General of Civil Aviation, as the training was of uneven standard. These 20 trainees had flown on an average a little over 55 hours at the Clubs. Although the Director-General of Civil Aviation insisted, particularly on grounds of safety, that the solo flying training according to the Act and the Rules should be strictly adhered to, that insistence was in practice ignored in this case.

102. In view of the D-G.C.A. Department not recognising the number of solo hours flown at the Clubs as of equivalent standard with the hours flown at the Centre, we would have expected that the trainees at the Flying School at Allahabad would have been given the solo flying experience of more than 200 hours before recommendations were made for the issue of 'B' Licences to them. During the course of his evidence, Mr. G. C. Arya (who had given instruction to the above referred trainees) the present Chief Inspector of Flying, admitted the fact that the issue of the above licences was not in acordance with the Act and the Rules made thereunder. There can be no justification for the issue of these 'B' licences with hours far less than the minimum required under the Act. It was brought to our notice by one of our colleagues that these licences for less than 200 hours solo were not issued only to the pupils trained at the C.A.T.C., but they were issued to some others also who were trained at Hamble and held U.K. Commercial Pilots' Licence, because in the judgment of the D-G.C.A. the flying experience which they had was substantially equivalent to 200 solo hours. The above 20 licences, it was contended, were issued under Rule 41(3) (c) of the Indian Aircraft Rules. The Committee did not agree with that view. The Committee, therefore, considers it its duty to point out that the adoption of such illegal procedure of issuing licences is bound to shake the confidence of the public in the sense of fairplay of the authority in the Government entrusted with that task.

103. **A legitimate cause for complaint.**—It has been brought to our notice by our colleague, Raja Saheb of Bhadri, that the pupil trained at the C.A.T.C. was favoured in several ways in contrast with the treatment meted out to the pupil trained at the Flying Clubs. In the first place, the pupils selected for advanced training at the C.A.T.C. were to be given priority for pre-entry training at the Flying Clubs. As remarked by Raja Saheb of Bhadri, the Clubs had, therefore, to suspend the training of some of their pupils for making room for imparting training to the pupils selected by the C.A.T.C. This was not fair to the pupils undergoing training at the Clubs. Further, while the pupils selected by the C.A.T.C. for pre-entry training at the Flying Clubs had to pay only Rs. 20 per hour for their flying training, the pupils going direct for training to the Clubs had to pay Rs. 25 per hour for the same purpose. This was not the end of the story. While a bonus of 250 only was given to the Flying Clubs for every 'A' Licence obtained by its own pupils, double that amount or say a sum of Rs. 500 was given to the Clubs for every pupil sent to them for training by the C.A.T.C. Moreover, pupils undergoing their advanced training for 170 hours dual and solo which included twin-engined training had to pay a net sum of Rs. 4,250 to the Clubs for undergoing training for the same number of hours and that too on single-engined aircraft. And to crown the whole, while the pupils trained at the C.A.T.C. had not to pay an additional fee for their Dakota Conversion Training, pupils coming from the Clubs for such training had to pay a sum of Rs. 4,600 for that purpose. The net result of all these concessions granted to the pupils of the C.A.T.C. which were denied to the pupils trained at the Clubs—was that the pupils trained at the Clubs had to pay the sum of Rs. 6,850 more than their fortunate brethren trained directly at the C.A.T.C. for obtaining his 'B' Licence with the endorsement of 'Dakota Conversion'. We strongly feel that there can

be no justification for this policy of differentiation in subsidising technical training in the country at the cost of the State and, therefore, recommend that the Government should adopt in the future an uniform basis of financial assistance, whether the flying training is imparted at the Flying Clubs or at the Flying School at Allahabad, or at any other institution for that purpose.

104. **Training at the C.A.T.C.**—We have already referred, in previous paragraphs, that instruction in P.G.T. at the Centre was better than that given at the Flying Clubs. This naturally attracted a large number of students from the Clubs for undergoing that training at the C.A.T.C. As regards flying training, although the D.G.C.A. has claimed that it was far better than that imparted at the Flying Clubs, that is not the impression that we have formed, from the evidence which we have received, or the conclusion to which we have come after our visits to that place. As already stated, there is very little to choose, broadly speaking, in this matter between the training imparted at the Clubs and that imparted at the C.A.T.C.

105. **Accommodation and amenities.**—We are definitely of the opinion that there is considerable scope for improving the nature and quality of the accommodation provided for the trainees and the amenities which are available to them at the C.A.T.C. Neither of these comes up to the modern standard. The conversion of the old barracks for this purpose does not fit in with the modern requirements in this connection as neither do they create a proper atmosphere for study nor do they provide suitable living accommodation conducive to health and sanitation. No common messing on modern lines, like the one to be found in the Flying Schools of the Indian Air Force, has been provided for the trainees of the Centre. They, therefore, miss the facilities of obtaining healthy food at a reasonable cost. They are also thereby denied the opportunities of building up a cultured social life and promoting the *esprit de corps*, two vital elements of a modern institution. We would, therefore, strongly recommend that the authorities concerned should bring the provision of these facilities and amenities up to the modern standard so that the trainees can have the best of the academic and the social life in a healthy and lively atmosphere of cheer in their daily life. What we have stated above about the quarters in which the pupils have to live applies with greater force to the quarters in which the staff at the Centre are housed.

106. **Conversion Courses—Policy of discrimination.**—Papers in connection with the Dakota conversion courses at Civil Aviation Training Centre, Allahabad, were submitted to us for our consideration by the Director-General of Civil Aviation, along with a letter which the Secretary wrote to us, dated New Delhi, the 25th June, 1952. It may be stated at this stage that, as mentioned in paragraph 94 above, the Government at the time of sanctioning the scheme of training at the Flying School, left the responsibility of conversion training to the Operating Companies.

107. **New Policy for granting Dakota Endorsement.**—In his letter dated the 24th December, 1951, addressed to all Airline Companies, scheduled and non-scheduled, the Director-General of Civil Aviation

had informed them that "it has been decided, subject to the approval of the Government, that the temporary endorsement will only be granted to 'B' Lcience-holders who undergo successfully a short intensive course of 5 hours flying on Dakota aircraft coupled with 5 hours of link training and other ground training at the C.A.T.C., Allahabad, after 31st December, 1951". Up to then, 'B' Licence holders were granted temporary endorsement of types like Dakota aircraft, after they had undergone some preliminary training with the Airline Companies and passed their flying tests conducted by the Companies' Check Pilots to act as co-Pilots under the exemption granted by the Government. The right of training and granting the temporary endorsement under the exemption was to be taken away from the Airline companies. The withdrawal of this exemption was justified by the Director-General of Civil Aviation on the following ground: He had stated in the letter referred to above that:—

> "A large number of accidents have been suffered by airline aircraft in the last 18 months and most of these accidents are attributed to pilot's error."

Both the Air Transport Association of India and the other Airline Companies had protested against the serious charge made by the Director-General of Civil Aviation. It is surprising that the co-pilots should be held responsible for any accidents that had happened. Co-pilots are not responsible for the flying of aircraft. That is the sole responsibility of the pilot. It is difficult, therefore, to understand how the training for conversion of the co-pilots should be held responsible for any accidents that might have happened.

108. In his letter, dated the 14th March, 1952, which the Under Secretary, Ministry of Communications, wrote to the Director-General of Civil Aviation, the 2 stages of the conversion scheme, as sanctioned by the President of the Union, was laid down. It was as follows:

First Stage.—"The co-pilots, employed by airline companies, after some preliminary training by the companies, should undergo tests and an intensive course of training of Dakota aircraft at the Civil Aviation Training Centre, Allahabad. The course will be for a period of six weeks and will include 5 hours flying on Dakota aircraft and 5 hours training on Link Trainers. The trainees, after successful completion of this training will be eligible for a temporary endorsement for Dakota aircraft on their 'B' licences."

Second Stage.—After obtaining the temporary endorsement referred to above, the co-pilots will be allowed to go back to the Airline companies and after gaining further experience on Dakota aircraft for a period of six months, should return to the Civil Aviation Training Centre, Allahabad, for undergoing a further training course for a period of six weeks consisting of 10 hours flying training on Dakota aircraft. After successful completion of this course, the trainees will be eligible for permanent endorsement of Dakota aircraft on their 'B' licences."

109. It would be observed that these two stages of the conversion course would require nearly 9 months for a co-pilot employed by the Airline company to obtain his permanent endorsement for Dakota after undergoing his training at the Flying School at Allahabad.

110. **Protests against the New Policy.**—The trainees were required to pay Rs. 4,700 as fees in cash in respect of the first and second stages of the training referred to above. It is significant that if a trainee took his flying training from *ab-initio* up to the Dakota conversion course at the Civil Aviation Training Centre at Allahabad, he was required to pay a sum of Rs. 4,500 only. If, however, he had the misfortune to be trained at any centre other than the flying school at Allahabad, he would be called upon to pay a sum of Rs. 4,700 for Dakota conversion course alone. It is difficult to understand the justification of a policy of discrimination against those who had received their 'B' licence training at the Flying Clubs or at any place other than the centre at Allahabad. During the course of our talks with the trainees at the different clubs, they bitterly complained against this policy of unjustifiable discrimination against the trainees of the Flying Clubs and imposing upon them a crushing financial burden in addition to the large sum which they had to spend for obtaining their 'B' licence after undergoing flying training at the clubs. Not only do we fully sympathise with the feelings which the trainees entertained in this matter, but we cannot help adding that there could be no justification on any ground whatsoever in adopting such a policy of discrimination against them.

111. **Permanent Endorsement not in accordance with law.**—From the letter addressed by the Under Secretary to the Government of India. Ministry of Communications, dated the 26th May 1952 to the Director General of Civil Aviation, we observe that the President was pleased to approve another scheme for the conversion course on Dakota aircraft at the Civil Aviation Training Centre, Allahabad, for pilots holding commercial 'B' licences. The scheme approved on the 14th March was applicable to co-pliots with airline companies. The scheme approved, as mentioned in the letter dated the 26th May, applied to pilots holding commercial 'B' licences. It stated that the course at the Centre will be for a period of two months, and will consist of 12 hours of dual and 3 hours solo flying on Dakota aircraft. The trainee will be given a provisionally permanent licence, which will be confirmed after he completes 500 hours Dakota flying experience as co-pilot in some airline company, and a final test at the Civil Aviation Training Centre, Allahabad. It was decided, however, in June, 1952, that no tests were necessary after the 15 hour course at the Civil Aviation Training Centre, Allahabad, but only 500 hours satisfactory flying experience was necessary for the conferment of the licence. Here also, the point to be noted is that a co-pilot in an airline company would have to spend 9 months and pay Rs. 4,700 for getting his permanent Dakota endorsement. If he, however, held a 'B' licence and was not with any airline company, he would have to spend only two months at the Civil Aviation Training Centre, and pay a fee of Rs. 4,600 for obtaining the Dakota conversion endorsement which would become permanent after he flew satisfactorily 500 hours with an airline company. From the papers placed before the Committee, it is not clear as to whether the statutory tests were carried out before the issue of a "provisional permanent endorsement" or whether a mere 15 hours training on Dakota aircraft at the C.A.T.C. was considered to be sufficient to render the pupil eligible for the endorsement. It is, however, abundantly clear that no tests were laid down for final permanent endorsement at

the completion of 500 hours. We cannot help remarking that the procedure adopted appears to be legally improper. If the pilot is able to pass the tests at the end of 15 hours training at the C.A.T.C. he is legally entitled to a permanent endorsement. If he is unable to pass the tests, he should be given a temporary endorsement and be required to pass the tests finally on the completion of 500 hours with an airline. It is not necessary to add that the co-pilot will have to spend a larger sum of money for obtaining his endorsement than the one holding the 'B' licence and who was not employed by any airline company. We fail to appreciate the justification for two different procedures for the Dakota conversion, which were adopted in these two cases for Dakota conversion at the flying school at Allahabad.

112. **Free conversion training for 'B' Licence Holders.**—We have carefully considered the letters and papers that have been forwarded to us on this subject. We have no objection to the flying school at Allahabad continuing to give the Dakota conversion training to the pupils undergoing training at the school as a part of their training for the commercial pilot's licence, whether it is the 'B' licence as it exists at present or whether it is the commercial pilot's licence under the new rules that we have proposed. We, however, want to make it clear that if the airlines are not to give such Dakota conversion training in the future to their co-pilots, as they have given in the past, we strongly recommend that the flying school at Allahabad should give such training free of cost to anyone holding 'B' licence and who wants to have it for the necessary endorsement of the type on his licence. It is quite essential to adopt such a policy in order to remove a very just and bitterly felt grievance on the part of those who are trained at the Flying Clubs and hold the 'B' licences at present.

COST OF TRAINING AT THE FLYING SCHOOL

113. **Collection of Data.**—The cost of training is a very vital element in the working of an institution. The Committee, therefore, requested the Secretary to secure the necessary particulars from the D.G.C.A. in regard to the cost of training at the Flying School, Allahabad. These particulars were furnished to the Committee in the beginning of July. As there was a substantial variation in the method of allocating expenditure amongst the different Schools at the Allahabad Centre, adopted by the D.G.C.A. and that communicated to us, at our request, by the Principal of the Centre, and as further information had to be obtained in regard to some of the important items, considerable correspondence had to be carried on to get the whole position clarified. It was only, therefore, in the latter part of October that we could secure the data that we required for determining the cost of training at the Flying School.

114. **Estimates of Flying Cost.**—The cost of training pilots at the C.A.T.C. has been estimated from time to time and it has varied from Rs. 17,500 per trainee to Rs. 37,600. Sir Frederick Tymms estimated it in 1944-45 at Rs. 37,600 excluding messing and overheads of the School. When the revised proposals for civil aviation training were

submitted to the Ministry of Communications by the D.G.C.A. in January 1948, he calculated the cost of training at Rs. 34,000 exclusive of the provision for depreciation on capital equipment. In the Note which the D-G.C.A. however, submitted to the Ministry in February, 1951, justifying the continuance of the Flying School, he laid down the cost of training at the Flying School, on the basis of 40 Pilots, at Rs. 17,500 without the provision for depreciation. On the basis of actual expenditure for the year 1951-52, the cost has come to Rs. 27,600 per trainee according to the basis of allocation adopted by the D-G.C.A., and to Rs. 43,487 per trainee according to that adopted by the Principal of the Centre. This cost is inclusive of depreciation but exclusive of the provision for insurance. These wide variations made it not an easy task for the Committee to determine what the actual cost of training was, on the strength of the figures for the year 1951-52 supplied to them.

115. **Considerations for determining the basis of costs.**—It has been contended that as the C.A.T.C. is a composite institution containing the Flying School, the Aerodrome School, the Communication School and the Engineering School, it was not easy to determine the cost of training at each of these Schools. The benefit which each of the Schools would derive from the existence of the other Schools should be taken into account in determining the cost. It was, therefore, considered desirable to examine the question from all points of view in the light of the data that was available. At the meeting of the Committee held at Allahabad in November, Mr. K. K. Roy and Mr. Subramaniam, in consultation with Mr. Kathju, the Principal of the Centre, were, at the request of the Committee, good enough to go thoroughly into the question in the light of the papers and data received, and determined what that cost of training at the Flying School had been. After careful consideration of all the view-points urged, they came to the conclusion that the cost of training at the Flying School had come to Rs. 52,948 per trainee, inclusive of the cost of depreciation and insurance. The Committee endorsed their views and agreed that the basis adopted by them in their calculations was fair, equitable and just.

116. **Insurance—an inevitable element of cost.**—Whatever may have been the practice with the Government, the Committee consider it essential that the provision for insurance should be an essential item of the total cost of training. It is important to note that the Flying Clubs have actually to insure their aircraft, whether they are owned by the Clubs or are loaned to them. Insurance, therefore, forms an important item of the cost of flying at the Flying Clubs. It should be so at the Flying School also. The amount of insurance has been calculated in the following way: The rate of premium has been calculated at 12½ per cent. For Chipmunks and Ansons the depreciated value of the aircraft has been taken as the amount for which they should be insured. The actual value of the Dakotas has been taken as the amount for which they should be covered. Only one month's risk was covered for the Dakota, and 7 months' risk was covered for another Dakota, as that was the period for which they were used. The amount to be debited to insurance thus came to Rs. 1,49,830.

117. **Basis of allocation of depreciation.**—Deprecation has to be included in the calculation of cost. Ansons and Dakotas are provided at the Flying School only for the benefit of the pupils of the Flying School undergoing advanced training. The training to be imparted at the Aerodrome. Communication and the Engineering Schools does not need them. The number of aircraft provided is again in accordance with the requirements of the trainees of the Flying School. The training of the Assistant Aerodrome Officers does not require 12 Chipmunks. The number of hours flown by them were only 95 in 1951-52. One Chipmunk would have been quite sufficient for that purpose. Moreover, it may be mentioned that no aircraft was utilized for the training imparted to Communications personnel at the Civil Aviation Training Centre at Saharanpur before its amalgamation with the Civil Aviation Training Centre at Allahabad in December, 1950. It is to be noted that out of 1095 pupils trained by the Communications School up to 31st October 1952, a total of 761 trainees had been trained at Saharanpur without the aid of aircraft. We, therefore, are of opinion that the amount of depreciation should be allocated to the different Schools on the basis of the number of hours flown by the pupils of those Schools. The amount thus determined has been included in the cost of training referred to above.

118. Depreciation was calculated on the following basis:—

Ansons.—5 years' life. Depreciation to be calculated at 20 per cent. of the cost per annum.

Chipmunks.—8 years' life. Depreciation to be calculated at 12½ per cent. per annum.

Dakota.—4 years' life. Depreciation to be calculated at 25 per cent. per annum.

The cost of 12 Chipmunks was taken at Rs. 5,45,200; the cost of 3 Ansons was taken at Rs. 9,35,000; and the cost of 2 Dakotas was taken at Rs. 2,54,000. These figures were in accordance with the particulars given by the D-G.C.A. The amount of depreciation thus calculated came to Rs. 3,21,817.

Depreciation of Stores and Workshop equipment: The figure of Rs. 44,000 given in the statement of the D-G.C.A. and the Principal was accepted by the Committee.

119. **Pay and Allowances of Officers.**—As regards the pay and allowances of Officers and staff (technical), the list of staff supplied was analysed and the staff pertaining to the Flying School was ascertained and allotted to it. Staff engaged purely for Ground Engineering training was excluded. So far as the Chief Ground Engineer was concerned, 1/3 of his salary was debited to the Ground Engineering School. This was considered reasonable in view of the time which he has to devote for the supervision of the Ground Engineering training and the Overhaul and Maintenance sections.

120. **Distribution of the cost of the P.G.T. Course.**—As regards the P.G.T. course, it was found that 162 trainee-months were utilized for trainees coming from the Clubs and 190 trainee-months for Pilot-trainees of the C.A.T.C. It was, therefore, considered advisable that credit should be allowed to the technical establishment for giving

training to outside trainees. In the absence of data of actual expenditure incurred on this course, the full amount realised as fees from all the trainees undergoing the P.G.T. course was credited to that account. In other words, the cost of running the Flying School was reduced to that extent. The amount realised from the trainees from the various Flying Clubs undergoing the P.G.T. course was, therefore, credited to that account. After making the necessary adjustments it was found that the total expenditure on technical staff came to Rs. 2,24,560.

121. **Spares and Stores.**—Spares and stores consumed has been taken at Rs. 1,29,357. During the course of discussion, it transpired that the amount of Rs. 80,000 which was shown originally in the D.G.C.A. statement as Chipmunk spares, was not the value of the spares actually consumed, but gave the cost of the spares purchased. As no figures in regard to the actual consumption were available, the entire sum of Rs. 80,000 was taken as the actual cost of spares.

122. **Cost of Fuel and Oil.**—There was no difference as regards the direct operating cost for Fuel and Oil, which was given as Rs. 1,08,800.

123. **Work-charged Staff.**—The full amount shown in the Principal's report for the work-charged staff was accepted and was taken at Rs. 4,400.

124. **Maintenance of Buildings.**—The figures given in the D.G.C.As. statement was accepted in regard to the maintenance of buildings. They stood at Rs. 11,753.

125. **General Administration.**—As regards General Administration, it was suggested that the cost under this head should be divided in the ratio of trainee months. This principle was not accepted. To divide the cost of General Administration on the basis of the fluctuation in the number of students in the different Schools will result in large and undue fluctuation in the cost of the General Administration of those Schools. There cannot be a large fluctuation in the cost of administration of a School merely because the number of trainees would vary in that School from time to time. After taking all factors into consideration, the Committee accepted the proposal that 25 per cent. of the total administration cost should be debited to the Flying School. This was considered fair and reasonable. The amount thus debited came to Rs. 85,925.

126. **Total Cost.**—The total cost incurred in running the Flying School was thus arrived at. To summarize, the same stood as under:

		Rs.
I.	Technical Staff	2,24,560
II.	Spares	95,300
	Spares for twin-engined aircraft	8,800
	Stores & Materials	25,257
	Work-charged staff	4,410
	Direct Operating Costs: Fuel & Oil	1,08,800
	Repairs	8,300
III.	Maintenance of Buildings	11,753
IV.	General Administration	85,925
V.	Depreciation	3,21,817
VI.	Insurance	1,49,830
	TOTAL	10,44,752

127. **Cost of Training of a Pilot.**—The cost of training a Pilot in the Flying School was arrived at in the following manner: All flying hours were reduced to equivalent Chipmunk hours. 5 Chipmunk hours were taken as equivalent to 1 Anson hour, and 12 Chipmunk hours equal to 1 Dakota hour. The total expenditure incurred in the running of the Flying School, *viz.* Rs. 10,44,752, was divided by 5,975, which were equivalent Chipmunk hours flown at the Centre. This gave the hourly cost of one equivalent Chipmunk hour as Rs. 174,85. As the total instruction hours for pilot-trainees was 4,795, the total cost on instructional flying for pilots only came to Rs. 8,38,432 (4,795 × 174·85). As the number of trainees during 1951-52 was 15-10/12, the cost of training per trainee came to Rs. 52,948.

128. We are aware of the fact that the number of trainees at the Flying School and the number of hours which they will fly per annum will influence the cost of training at the School. If the School had got for training the number of pupils as laid down in the original programme of 56 in the first year and 112 in each of the second and the third years, or even 40 in the first year and 60 in each of the second and third years, as indicated in the revised programme, it would have brought down the cost of training at the School. We have, however, considered it our duty to determine what the cost of training at the Flying School of the Centre has been, as we have been asked to study the working of the Centre and make proposals for its improvement. We shall refer to this question again in the Chapter, where we deal with the future role which the C.A.T.C. should play in the training of Pilots.

CHAPTER IV

LEGISLATION PERTAINING TO THE LICENSING OF PRIVATE AND COMMERCIAL PILOTS

129. We have dealt with the movement of the light aeroplane clubs and the working of the flying school at the C.A.T.C., Allahabad, in the two previous Chapters. The clubs have trained pupils for obtaining both Private and Commercial Pilot licences. Their ground instruction was, broadly speaking, not of the highest modern standard. Link training is not given at the clubs. Flying is taught only on single-engined aircraft. Pupils at the C.A.T.C. are, however, given training both on the single as well as the twin-engined aircraft. Their P.G.T. course has drawn pupils to the Centre even from the clubs. Elementary lessons are also given in link training. While training in instrument flying is given both at the clubs and at the Centre, neither of them provides instruction in Instrument landing. We have borne in mind these facts in examining the system of training for the future. Legislation pertaining to the issue of Private and Commercial Pilot's licences has a vital bearing on the system of training that should be evolved in this country. We have been asked to consider the existing legislation in this connection and make recommendations for alterations in the law that may be necessary. The Ministry of Communications has also sent to us for our consideration the proposals which they had drawn up for amending the present law relating to the licensing of air personnel.

130. **Safety the prime consideration.**—"How can the safety of passengers and crew carried in the aircraft be promoted" is the vital question which we put to ourselves in examining the existing legislation. Experience has shown that the most important single factor which contributes to air safety is the proficiency of the personnel engaged in aviation. The skill and competence of the pilots who fly the aircraft the navigators who navigate them, the maintenance engineers who keep them in perfect working order and completely airworthy, the radio operators who help their navigation, the air traffic control officers who regulate their arrival and departure at aerodromes and during their flight on the route, the meteorologists who provide weather reports to the pilots both before and during the flight, all these contribute to the safety of air operations. It is the knowledge, experience, competence and skill of the air-crew which set the standards of safety and help their maintenance during air operations. The pilot-in-charge of the aircraft has, however, the greatest responsibility in setting these standards and has to play the most active and effective part in their maintenance. Any law, governing the licensing of pilots, should be such, as would promote the creating, maintaining and enforcing of such standards of safety. This has been the fundamental basis of our approach to this problem.

131. **Development in aircraft and technique of operations necessitate the acquisition of higher knowledge experience and skill by pilots.**—The design, the size and the speed of the aircraft have undergone a revolutionary change. From the carriage of passengers and mails in a tiny single-engined Waco a generation ago, they are now carried in a multi-engined Constellation and a Comet. Instead of flying only by day, we are now flying also at night. Our planes move in the air and land on the ground under all weather conditions—fair and foul. They swim over the clouds and come down over the aerodrome even under fog. Aids to navigation have increased. Landing under radio range, instrument landing system and ground control approach have made remarkable contribution to the safety of air operations. New and highly scientific instruments have found their place in the machine. The multi-engined aircraft is coming more and more into use and is bound to become the order of the age. A pilot will, therefore, notice a substantial change in flying the multi-engined aircraft—with a larger number of instruments to use and with specialised engine controls and the like. He will have to get himself familiarised with these changes, including the lay-out of the cockpit, and will have to obtain mastery over handling characteristics and manoeuvring limitations of a comparatively heavy type of aircraft. It is, therefore, essential that the would-be pilot should have a thorough knowledge of his flight instruments, the navigational aids and the different types of landing systems and must have experience to use them with skill and care. He must have a fair knowledge of the working of his aircraft and engines. He should be taught international A.T.C. practices and procedures, use of charts and meteorology, theory of flight rules regarding the conduct of I.F.R. and V.F.R. flights, and basic principles of loading and weight distribution and their effect on flight characteristics. His knowledge of ground subjects must be fuller and more comprehensive than before. He must have a greater flying experience, longer night and instrument flying, a more comprehensive technical knowledge

covering a wide range of subjects including radio navigation, and he shall have to go through more stringent flying and technical examination tests before the necessary licence is issued to him.

132. **New Rules require greater knowledge and experience and more stringent flying tests for same privileges.**—Two fundamental tests are applied in determining the privileges which are attached to the licences which are issued at present. Longer and more comprehensive flying experience is demanded of one who is to be in charge of a scheduled service, carrying passengers and cargo, than those applied to the non-scheduled service carrying the same. The other consideration which plays an important part in the grant of privileges is the weight of the machine to be flown. In the new rules which we have proposed for the issue of licences, more emphasis has been laid by us not on the nature of the service—whether it is scheduled or non-scheduled one—but on the fact whether it carries passengers or not. For instance, at present a person holding a 'B' licence with only 200 hours solo flying experience can, provided he has got the endorsement of the type on his licence, fly a Dakota weighing about 25,000 lbs. on a non-scheduled service, with passengers and cargo. Under our proposed rules, even a Senior Commercial pilot, with 200 hours solo with an additional experience of 1,000 hours as a co-pilot cannot fly a Dakota even on a non-scheduled service with passengers. He is limited, on such a service, to fly with passengers a machine weighing not more than 15,000 lbs. Similarly, greater flying experience and more servere flying tests are demanded than those required at present for handling a machine of the same weight. For instance, 750 hours flying experience including 500 hours solo, is required, under the present rules, of a pilot who can fly a Viking, weighing about 29,000 lbs., on a scheduled service with passengers. Under the new rules, which we have proposed, the pilot can fly that machine on a scheduled service, with passengers, only if he possesses a total flying experience of 2,150 hours, of which at least 200 hours should be solo, 75 hours instrument flying, and 1,800 hours as co-pilot. In addition to this, a person holding Private Pilot's licence can fly at night at present without a Night Rating. He will not be able to do so under the proposed rules without a Night Rating. A pilot can fly under instrument flying conditions without the possession of an Instrument Rating under the present rules. But under the new rules, the possession of the Instrument Rating will form part of the Senior Commercial Pilot's licence as well as the Airline Transport Pilot's licence. If a person holding a Private Pilot's licence or a Commercial Pilot's licence desires to fly under Instrument Flying conditions in the future, he will not be able to do so unless he has the additional Instrument Rating in his licence. This will give some idea of the manner in which qualifications for flying experience and flying tests and requirements of technical knowledge for which evidence will have to be given, by pupils, aspiring for licences, have been made more stringent in the future than they exist today.

133. **Existing categories of licences.**—Part V of the existing Indian Aircraft Rules, 1937, (personnel of aircraft) lays down in detail the personnel that could operate flying machines. The rules given under this Part specify the various categories of licences that should be

held by the operating crew for the operation of aircraft under conditions specified therein. They provide for the following categories of licences for aircrew:—

(1) Private Pilot's licence ('A' licence).

(2) Public Transport or Aerial Work Pilot—Pilot's 'A' licence specially endorsed for limited commercial operation ('A-1' licence).

(3) Public Transport Pilot's licence—'B' licence.

(4) Pilot Instructor's licence.

134. In addition to the licences mentioned above, the rules in this Part provide also for the grant of the following licences:—

(1) (a) Second Class Navigator's licence.
    (b) First Class Navigator's licence.

(2) Radio Telegraph Operator's licence.

(3) Radio Telephone Operator's licence.

135. The rules also lay down the qualifications which one should possess and the tests and examinations which one should pass for becoming eligible for obtaining the various categories of licences. They also provide for the authority who can issue licences, the conditions under which they should be issued, the proofs, which are required to be submitted by the candidates desirous of obtaining the licences, the periods of validity of licences and the conditions under which they could be renewed. The licences which the aircrew of foreign registered aircraft in India should possess and the conditions under which the licences of foreign aircrew could be validated for operation in India are also covered by these rules. The rules prescribe the age of the candidates going in for various categories of licences as well as the fees payable to the Government for the same. Schedule II, Chapter II of the Indian Aircraft Rules, 1937, gives the complete details required in connection with the proofs of competency, tests and examinations for the issue and renewal of licences to aircraft personnel. We recommend that Part V, Chapter II and Schedule II, Chapter II of the Indian Aircraft Rules, 1937, so far as they concern Pilot's licences, should be deleted and the amended rules, as embodied in Appendix 'F' be substituted in their places.

136. **New Categories of Licences.**—The new rules recommended by us provide for the grant of the following categories of licences for the personnel of aircraft:—

(1) Student Pilot's licence.

(2) Private Pilot's licence.

(3) Commercial Pilot's licence.

(4) Senior Commercial Pilot's licence.

(5) Airline Transport Pilot's licence.

137. In addition to the grant of the above licences, the new rules also provide for the grant of the following ratings

(1) Night Rating which can be included in Private Pilot's licence to increase its privileges.

(2) Instrument Rating, which can be included in Private Pilot's licence and Commercial Pilot's licence to increase their privileges for operation under I.F.R. conditions.

(3) Assistant Instructor Rating, which can be included in Private Pilot's licence, Commercial Pilot's licence, Senior Commercial Pilot's licence and Airline Transport Pilot's licence for acting as Pilot Instructor under another senior Pilot Instructor.

(4) Instructor Rating, which can be included in Private Pilot's licence, Commercial Pilot's licence, Senior Commercial Pilot's licence and Airline Transport Pilot's licence for giving instruction in flying on flying machines.

(5) Glider Instructor Rating for giving instruction in flying on gliders, whose total weight exceeds 1,250 lbs.

138. The new rules lay down the privileges attached to the different categories of licences. They also provide for the licensing authorities, proofs of competency, periods of validity of licences, conditions of the renewal of licences, personnel to be carried in foreign registered aircraft, validation of foreign licences, age of applicants and fees payable for the different categories of licences.

139. Paragraphs 1 and 2 of Section 'C' of Schedule VIII lay down the additional requirements and conditions for the operation in scheduled air transport services, of aircraft of the classes defined and in the conditions defined in that Section. Paragraphs 3 and 4 of Section 'C' require pilots to be familiar with modern aircraft instruments and the radio navigation facilities available in India. Paragraphs 7 and 8 of Section 'C' deal with the flying tests which all pilots flying as pilot-in-command of an aircraft with two or more engines on a licensed air transport service should demonstrate. As all these requirements are included in the new rules for the grant of Commercial Pilot's licence, Senior Commercial Pilot's licence and Airline Transport Pilot's licence, the whole of Section 'C' of Schedule VIII, except paragraphs 5 and 6, should be deleted. We shall refer to paragraphs 5 and 6 in the Chapter on Operating Efficiency.

140. The new rules which we have proposed lay down statutorily the qualifications and licences that should be possessed by aircrew personnel for all air operations including private flying, aerial work flying, public transport without passengers and public transport with passengers under all conditions of flight, including day or night flying, and also under V.F.R. and I.F.R. conditions. These privileges of the aircrew could neither be enlarged nor restricted without altering the law.

141. **Qualifications for existing and proposed new Licences.**—We have prepared a statement comparing the subjects for ground instruction, the flying experience, the flying tests, the nature of privileges, the conditions for renewal, the possession of night and instrument rating, etc. as prescribed in the existing rules for the different categories of licences with those recommended by us for the new categories of licences proposed by us. That statement is set forth in subsequent paragraphs. We would, however, offer here a few observations in connection with the salient features which distinguish the existing rules from the proposed new rules.

142. While we have limited the nature of privileges attached to the licences, the flying experience required and the flying tests to be undergone for their acquisition have been made more stringent than before. A pilot possessing the 'A-1' licence requiring 100 hours solo experience and 25 hours cross-country experience in flying can fly at present an aircraft of any weight on a non-scheduled service by day. In the future, a pilot holding a Commercial Pilot's licence, which requires 200 hours flying experience with at least 100 hours solo, 20 hours cross-country flying and 10 hours night flying, will not be entitled to operate as pilot-in-charge of an aircraft weighing more than 12,500 lbs. even on a non-scheduled service. The heavier the weight of the machine, the more stringent will be the qualifications required for handling it. Night flying is permitted under the existing rules without a Night Rating. No one will be allowed to fly at night, under the new rules, without the Night Rating. A person holding a Private Pilot's licence today can fly at night without a Night Rating. He will not be able to do so under the proposed new rules. No one in charge of a flying machine will be entitled to fly, as he does today, under instrument flying conditions, without posessing an Instrument Rating. The number of subjects in which ground instruction will be given has been increased and the knowledge required of those subjects has been made more intense and up-to-date. The privileges of handling and flying a flying machine in charge carrying passengers will require higher qualifications, under the new rules, than those prescribed under the present ones. A careful study of the comparative statement set forth in subsequent paragraphs will reveal the fact that the fundamental considerations of safety and the greater experience and skill required in the operation of the modern multi-engined aircraft have considerably influenced the Committee in framing the new rules which they have proposed. We shall now briefly go over the existing and the proposed new licences.

143. **Private Pilot's licence.**—A person can obtain at present the Private Pilot's 'A' licence if he can show evidence of having flying experience of 5 solo hours, passes an easy examination in theoretical subjects and goes successfully through the simple flying tests. This licence will entitle him to fly any type of aircraft which may have been endorsed in his licence. He is, however, not allowed to carry any passengers unless he has gained 25 hours solo flying experience and is certified as safe by a qualified instructor after he has made three landings on the type. He can also fly at night. He is not, however, entitled to fly a public transport or for remuneration.

144. The proposed Private Pilot's licence under the new rules will take the place of 'A' licence. A person who wants to obtain this 'A' licence under the proposed rules will have to give evidence that he has flying experience of 40 hours (30 hours in an approved school) of which at least 15 hours have been solo and 3 hours of cross-country flight. The flying tests which he will have to undergo have been made more stringent than those required at present. In addition to his passing technical examination in Aviation Law and Elementary Navigation, he will have to pass the same in Flight Planning, Flight Navigation, Meteorology, Airmanship, Signals and R/T Practical Communications. This will entitle him to fly a Private aircraft of the type endorsed in his licence by day and in fair

weather. If he wants to fly in bad weather he will need an Instrument Rating. He will not be entitled to fly a public transport nor will he be entitled to fly for remuneration. It will thus be seen that the qualifications that are required under the proposed new rules are bound to ensure, comparatively speaking, a greater element of safety of operations. It is true that the requirements for private flying were very simple in all countries of the world as they were all anxious to encourage private flying in the formative period of the development of civil aviation in their countries. We have, however, to keep pace with the progress in the world. We are, therefore, of the opinion that considerations of safety and efficiency should influence the framing of the rules as much as the desire for spreading air-mindedness and encouraging private flying.

145. **Public Transport Flying.**—A person has to obtain, under the existing rules, either the 'A-1' licence or the 'B' licence for public transport flying. He will have to possess a flying experience of at least 100 solo hours including 25 hours cross-country flying before he can obtain his 'A-1' licence. For obtaining the 'B' licence he will have to give evidence that he possesses the flying experience of at least 200 solo hours, which would include 75 hours of cross-country flying and 5 hours of flight by night. With either of these licences he can fly aircraft of any weight, of the type endorsed in his licence, on a non-scheduled service. It may be added that while the possession of the 'B' licence will entitle the holder to fly as a co-pilot on a scheduled service, the holder of an 'A-1' licence is altogether debarred from scheduled flights. Additional flying experience as laid down in Schedule VIII, bringing his total flying experience from 300 hours to 1,500 hours, will be necessary before the pilot holding 'B' licence is entitled to operate aircraft exceeding 10,000 lbs. in weight in a scheduled public transport service. The principle of possessing greater flying experience has, therefore, been recognised even under the existing rules for entitling a pilot to fly an aircraft of greater and greater weight on a scheduled transport service. Sufficient stress, however, has not been laid under the present rules for acquiring adequate instrument flying experience for the graded weights of aircraft.

146. Under the rules proposed by us there are three categories of licences for public transport flying. The first is the Commercial Pilot's licence. The second is the Senior Commercial Pilot's licence, and the third is the Airline Transport Pilot's licence. Greater and greater flying experience will have to be obtained for the acquisition of these licences. While 200 hours flying experience with 100 hours solo will entitle a person to obtain the Commercial Pilot's licence, he will need a total flying experience of 1,200 hours, of which at least 200 hours will be solo and a thousand hours as co-pilot before he can aspire to obtain the Senior Commercial Pilot's licence. For obtaining the Transport Pilot's licence he will have to possess a total flying experience of 2,150 hours, of which at least 250 will be solo hours and 1,900 hours as co-pilot. Greater and greater emphasis has also been laid for night flying and for instrument flying before he becomes entitled to obtain the higher and higher category of licences.

147. A person holding a Commercial Pilot's licence is debarred from flying as pilot-in-charge on any aircraft on a scheduled transport service. He is entitled, however, to operate as a co-pilot on a

scheduled service. A person holding the Senior Commercial Pilot's licence, requiring a total flying experience of 1,200 hours, is entitled to fly an aircraft, as pilot-in-charge, up to 15,000 lbs. in weight on a scheduled service if it carries passengers and up to 30,000 lbs. in weight if it carries cargo. But, under the present rules, a person holding a 'B' licence, who may have acquired a total flying experience of 750 hours only, is entitled to fly as pilot-in-charge an aircraft, on a scheduled service carrying passengers, even up to 35,000 lbs. in weight. It will thus be noted that the heavier the machine the more stringent are the tests laid down under the new rules, particularly when the aircraft carries passengers on a scheduled service.

148. A person who wants to obtain the Airline Transport Pilot's licence will have to show evidence of possessing a total flying experience of 2,150 hours, of which at least 250 hours will be solo hours. His flying experience will include 100 hours of night flying, 100 hours of cross country flying, 25 hours of night cross-country flying and 75 hours of instrument flying. No such experience is required under the existing rules. A pilot holding the 'B' licence with a total flying experience of 1,500 hours is entitled, under the existing rules, to fly as pilot-in-charge, on a scheduled service carrying passengers, an aircraft of any weight. That will not be the case in the future. No one who does not possess under the new rules, an Airline Transport Pilot's licence will be able to fly an aircraft, as pilot-in-charge weighing more than 15,000 lbs. on a scheduled service carrying passengers. In fact, it is only a person holding the Airline Transport Pilot's licence who will be entitled to fly, as pilot-in-charge, an aircraft of any weight on a scheduled service with passengers. It may be added that greater emphasis is laid in the new rules than that laid in the existing ones, on the pilot showing greater proficiency in the present-day radio navigation and instrument let down procedures in the technical examinations which he has to pass and the flying tests which he has to undergo.

149. What we have stated above will show that if the new rules which we have proposed are put into operation, they will make a substantial contribution to the raising of standards of safety and efficiency in our air operations. We are conscious of the fact that those who hold the existing licences cannot convert them over-night into the proposed new licences. In order to enable them to do so we recommend that they should be given a period of two years from the date the new rules come into force, for enabling them to convert their existing licences into new licences. The next paragraph now will give a detailed comparison between the qualifications required for the existing categories of licences and those which we have recommended for the new categories of licences in the rules set forth in Appendix 'F'.

150. **Comparative statement of Requirements and Privileges of existing and proposed Pilot's Licences and Ratings**

S. No.	Existing Licence	Proposed Licence	Remarks
1	2	3	4
1	NON-EXISTENT	(1) STUDENT PILOT'S LICENCE :— *Age of applicant* :—17 years and above . *Period of Licence* :—24 months if applicant is less than 35 years of age. 12 months if applicant is 35 years or more. *Medical Requirements* :—As for Private Pilot's Licence. PRIVILEGES :— (*i*) To carry out flights for the purpose of qualifying for grant or renewal of licence. (*ii*) Can carry no passengers excepting a licensed pilot instructor. (*iii*) Flights to be carried out according to instructions given by a licensed instructor. (*iv*) Subject to such conditions as may be attached to licence. (*v*) Lapses on grant of a flying machine pilot's licence.	The licence is necessary so that no aircraft may be flown by a person without a licence. Persons undergoing training for the purpose of qualifying for a licence are permitted to do both local and cross country solo flying under the instructions of a licensed instructor. The existing licensing rules do not have a corresponding licence. Pilots under instruction are permitted to go solo within 3 miles of licenced aerodromes with prior intimation to Aerodrome Officers.
	PILOTS "A" LICENCE (Private Pilot) *Age of applicant* : 17 years and above *Period of Licence for grant or renewal* : 12 months. *Medical requirements* : As laid down	2. PRIVATE PILOT'S LICENCE *Age of applicant* : 17 years and above. *Period of licence for grant or renewal* : (*i*) 24 months for persons less than 35 years (*ii*) 12 months for persons 35 years and above. *Medical requirements*: As laid down.	The flying experience for the proposed licence is : 40 hrs. dual and solo with training under competent instructor in dual controlled aircraft (or) 30 hrs. of dual and solo in approved school. At least 15 hrs. solo at least 3 hrs. cross country flying within 6 months before application. In contrast to this the old licence required only 5 hrs. solo in preceding 6 months. The flying tests for the new licence includes all normal and emergency

PARTICULARS OF AIRCRAFT RATING : Any type of aircraft may be given a licence both single engined and multi-engined types of aircraft. No weight restrictions.	PARTICULARS OF AIRCRAFT RATING: (*i*) *Group A* —Single-engined aircraft not exceeding 12,500 lbs. (*ii*) *Group B* — Multi-engined aircraft not exceeding 12,500 lbs. (*iii*) *Group C* :—*Particular types exceeding 12,500 lbs.*	manoeuvres both for the single engined type or multi engined types with examiner on board with emphasis on correct procedures and practices. The flying tests for existing pilot's "A" licence are quite easy. There are four technical examinations for the proposed licence, namely : (*i*) Aviation law. (*ii*) Navigation Meteorology. (*iii*) Airframes and Engines General. (*iv*) Airframes and Engines Special.
TECHNICAL REQUIREMENTS FOR GRANT OF LICENCE :	TECHNICAL REQUIREMENTS FOR GRANT OF LICENCE :	
Flying Experience.—5 hours solo in preceding 6 months.	*Flying Experience* .—40 hrs. dual and solo comprising flying training under competent instructor in dual controlled flying machine. At least 15 hours solo, at least 3 hrs. cross country flying within 6 months before application. One triangular cross country flight with or without landings at two different places. 30 hrs. dual and solo accepted when training is in approved school or club. The other requirements of solo and cross country remain.	The existing licence has no technical examination. Thus the flying experience, flying tests and technical examinations for the proposed licence are all more stringent than those required for existing licence.
Practical Flying Tests.—To the satisfaction of Examiners (Observers) (*i*) Two flights involving glides from above 2,000 ft. and landings within 150 yds, (*ii*) Five figures of 8 turns and landing within 50 yards of a fixed point. (*iii*) A left and right hand spinning and recovery with an examiner on board. *Technical Examinatotions.* —Nil,	*Practical Flying Tests.*—Shall demonstrate to an examiner on board in general flying on the class and type aircraft including: (*i*) Preflight inspection. (*ii*) Starting procedure and running up (*iii*) Cockpit check. (*iv*) Taxying. (*v*) Vital actions 5 take offs and landings. *Technical Examinations* 1. Aviation Law. 2. Navigation and Meteorology. 3. Airframes and Engines (General). 4. Airframes and Engines (specific) *Night Rating* .—Evidence of 50 hrs. dual and solo including.	Renewal requirements are about the same in both cases. In privileges the proposed licence requires night rating for night flying and instrument rating for instrument flying. These restrictions are not imposed on the existing licence. In existing licence one has to have only 25 hours solo and a certificate from an Instructor that he is safe and has done 3 landings on the type for carring passengers. The proposed licence entitles the carriage of passengers without any additional certificate.

1	2	3	4
		At least 25 hrs. as pilot in-charge. At least 5 hrs. instruction in instrument flying of which not more than 2 1/2 hrs. may be on link trainer. 5 hrs. night flying including not less than 5 flights by night. As pilot in charge within 6 months preceding application. *Validity*.—The night flying is valid only when the holder has carried out five take offs and landings by night in the preceding six months.	In regard to period of licensing the new licence rules are more generous than the existing licence. For person below 35 years—The licence is valid for 24 months whereas it is valid for 12 months in the existing licence.
	Renewal requirements.—5 hours solo in preceding 6 months.	*Renewal requirements*.—Evidence of 5 hours as pilot in-charge in each class of flying machine in the 12 months preceding date of application.	
	In absence of experience 1. Three figures of 8 turns, 2. 3 landings within 50 yds. of a point. *Extension of Licence*.— As for issue or as renewal.	*Renewal requirements*.—In default such evidence all or any part of flying tests and technical examinations specified for issue. *Extension of Licence*.— (*i*) Flying tests as for issue of licence. (*ii*) Technical examination on Airframes and Engines (specific)	
	Privileges.—As pilot in-charge of Private Flying machine of the type given in licence.	*Privileges*— ce. (*i*) As pilot in-charge of Private flying machine of the type given in aircraft rating. (*ii*) As 2nd pilot of Private flying machine of the same class as specified in aircraft rating.	
	For carring passengers.—Above 25 hrs. solo and a certificate from a Pilot Instructor that the pilot is sufficiently safe and has done 3 landings on the type.		
	For night flying.—No additional qualifications for night flying.	*For night flying*.—Should have night rating for night flying of Private Flying machine.	
	For Instrument Flying.—No restrictions for instrument flying unless imposed at controlled aerodromes. The present rules do not have Instrument Rating.	*Instrument Rating*.—Should have instrument for flying under Instrument Flying conditions.	

Existing Licence	Proposed Licence	Remarks
1	2	3
PILOTS A-1 LICENCE :— *Age* between 19 and 45. *Period of Licence.*—6 months after grant and renewal. *Flying Experience* (1) 100 hrs. solo in preceding 2 years including not less than 30 landings. (2) Not less than 15 hrs. in preceding 6 months. (3) Not less than 25 hrs. cross country flights. *For multi-engined types*—Not less than 10 hrs. solo flying in multi-engined types.	COMMERCIAL PILIOTS LICENCE : — *Age* 18 years and above. *Period of Licence.*—6 months after grant and renewal. *Flying Experience* (1) 200 hours dual and solo or 150 hrs. dual and solo in approved school, inclusive of. (2) 10 hrs. Instrument Instruction. (3) 100 hrs. as pilot-in-charge. (4) 20 hrs. solo cross country flying including one flight of 300 nautical miles with two intermediate stops. (5) 10 hrs. night flying of which 5 hrs. may be dual. (6) 10 hrs. solo in the previous 6 months. (7) Reasonable experience on the type.	The requirements for A-1 licence under flying experience, flying tests and Technical Examinations are quite easy. No night flying test or experience is prescribed. No instrument flying experience or test is prescribed. Consequently the privilages are very restricted. The pilot could undertake only limited commercial flying. He cannot be engaged on scheduled services or in flights by night.
Flying Tests— *For single-engined flying machines.*—General flying for half an hour with an examiner on board and including 3 landings. *For multi-engined flying machine.*— (1) General flying for half an hour with an examiner on board including flying with each engine throttled in turn and 3 landings with one engine throttled—Part of the tests with part load and part of the tests with full board. (2) Cross country flying of at least 200 miles with examiner on board.	*Flying Tests*— 1. *Basic Flying Test* : for 1 hr. with examiner on board including : Engine failure after take-off Action in the event of fire. Straight and level flying—Precautionary landing, out of wind landing. Landing without power. Overshoot procedure from a powered approach. Turns of various degrees of bank with or without engine. Climbing and descending turns—Stalling and recovery.	In contrast to these the requirements for Commercial Pilot licence are very stringent. There is a provision for 10 hrs. instrument instruction, 10 hrs. night flying and reasonable flying experience on the type. In the field of flying tests they are very stringent for the proposed licence. Aircraft Types are given under two groups. The tests for Group I entry include emergency manoeuvres both in the case of single-engined aircraft and multi-engined aircraft. There is a provision for stringent cross-country flying test and night flying test. There is provision for basic flying test also. The technical examinations for the new licence are far more comprehensive and severe. A much higher standard of Aviation Law Air

1	2	3
Including three forced landings. Maintenance of height of 6,500 ft. for one hour during the tests.	*Instrument flying—* *Cross country Flying Tests.*—This will be a flight of 2 1 2 hrs. The candidate will be given the route. He should obtain all necessary information for the flight. He will be assessed on flight planning - map reading—instrument flying on route, use of R/T and liaison with Air Traffic Control Ability to obtain and use Radio hearings for fixing position and for homing—compilation of proper Navigation log.	Navigation Flight Planning, Meteorology R/T procedures, signals, Airframes & Engines (General and Specific Types). The pilot is required to know all about airline practices and procedures. In spite of all these his privileges are restricted to flying aircraft as pilot-in-charge of weight not exceeding 12,500 lbs. He may however fly as co-pilot on scheduled service on all aircraft without restriction of weight. The flying tests for co-pilot flying is only 6 landings by day or by night.
Night Flying Test Nil.	*Night Flying Test* with examiner on board. 1. Triangular cross country flight of 120 nautical miles returning to aerodrome of departure. 2. Two take offs and landings at the aerodrome on return. TYPE RATING TESTS:— *Group I Pilot-in-charge Multi-engined aircraft* : By day at maximum landing weight. 1. All manoeuvres used in normal flight, including take off and landing. 2. Landing with one engine inoperative. 3. Emergency manoeuvres, including simulated engine failure after take-off, and approach to the stall in both level and banked attitudes. *By night at maximum landing weight* : All manoeuvres used in normal flight including take off and landing—with one engine inoperative, all the manoeuvres used in normal flight, including landing. Group I—*Pilot-in-charge Single-engined aircraft.*—All manoeuvres used in normal flight Emergency manoeuvres, including simulated forced landings and recovery	

	from stalls entered from both level and banked attitudes. Group II.—*Second Pilot Rating*—Six take offs and six landings, by day or by night, as pilot-in-charge or as pilot under supervision.	
Technical Examinations : (1) Aircraft engines and instruments General and on particular type of aircraft to be entered on Licence. (2) Aviation Law. (3) Elementary Navigation.	*Technical Examinations :* (1) Aviation Law. (2) Flight Planning. (3) Flight Navigation. (4) Meteorology. (5) Seamanship (If seaplane or flying boat is included). (6) Signals. (7) R/T Practical communications. (8) Airframes and Engines (General). (9) Airframes and Engines (Specific type).	
Renewal.—10 hrs. solo flying in previous 6 months in the absence of experience General flying test with examiner on board. All or any part of the tests may be required.	*Renewal.*—Reasonable flying experience in preceding 6 months. Experience on each type may be required for retaining the type. In the absence of experience all or any part of flying tests and technical examinations as for the grant of licence.	
OT'S "B" LICENCE—	SENIOR COMMERCIAL PILOT'S LICENCE—	Though the requirements of present Pilot's "B" Licence and that of proposed Senior Commercial Pilot's are the same, namely 200 hours solo, the latter licence requires for more night flying experience. In addition it requires altogether 700 hours flying experience of which 500 hours may be obtained by logging twice the number of hours as co-pilot, e.g. 1000 hours of co-pilot flying. Thus, altogether the Senior Commercial Pilot may have as much as 1200 hours flying experience. In the field of flying tests the candidate
Age.—between 19 and 45 for 1st issue	*Age.*—Not less than 21 years of age.	
Period of Licence.—6 months following grant or renewal.	*Period of Licence.*—6 months following grant or renewal.	
Aircraft Rating.—Specific types are given for Public Transport in addition the pilot is authorised to fly for Commercial purposes other than Public Transport types of aircraft below a certain maximum weight. This maximum weight is fixed by the weight of the heaviest	*Aircraft Rating.* Aircraft Types are given under two Groups :— *Group I types*—the pilot can fly as incharge. *Group II types*—the pilot can fly as co-pilot.	

1	2	3
type included in the licence for Public Transport purposes. *Flying Experience.*— (1) 200 hours solo. (2) 15 hours in preceding 6 months. (3) 75 hours cross country flying including 5 hours by night. *For 2 or more engines.*—10 hrs. solo on multi-engined aircraft or 20 hrs. Co-pilot hours on multi-engined aircraft. *Practical Flying Tests.*— 1. All tests for A licence. 2. Altitude, gliding flight, skill and spinning tests. 3. Two cross country flights :—1st two obligatory landings en route 2nd cross country flight with examiner on board and 3 forced. *For Single-engined aircraft landings.*—General flying for 1/2 hour with examiner on board and 3 landings *For Multi-engined aircraft.*— 1. All manoeuvres. 2. Landing with one engine inoperative using alternative engine. 3. Emergency manoeuvres including simulated engine failure after take off.	*Flying Experience* — (1) At least 700 hrs. including co-pilot flying. (2) At least 200 hrs. as pilot incharge. (3) At least 50 hrs. cross country flying. (4) At least 25 hrs. night flying. (5) At least 10 hrs. night cross country flying. (6) At least 10 hrs. in preceding 6 months. (7) Reasonable experience on the type to which the licence relates. Provided that flying experience as second pilot may be reckoned towards total 700 hrs. to the extent that one half such flying may be included if carried on types requiring co-pilot or on military types requiring co-pilot. *Practical Flying Tests.*— 1. General flying test as given in the tests for commercial pilots licence. 2. *Instrument Rating Flying Tests.*—All the tests prescribed for Instrument Rating. *Type Rating Tests.*—Group I Pilot incharge rating multi-engined aircraft. (1) *By day at maximum landing weight.*— (*a*) All manoeuvres used in normal flight including take off and landing. (*b*) Landing with one engine inoperative. (*c*) Emergency manoeuvres, including simulated engine failure after take-off and approach to the stall in both level	has to undergo rigorous Instrument flying tests and qualify for instrument rating which is part of the licence itself. The instrument rating tests apart from testing the proficiency in precision instrument flying involving rate of turns, also involves precision let down procedure. These are all new techniques in airline transport and were not existent when the old licence rules were framed. Further there are very stringent flying tests for aircraft rating. The tests for entry in Group I which entail the pilot to fly as pilot in charge of the aircraft on Public Transport with passengers are very stringent. They include emergency manoeuvres with simulated engine failures, after take off and prior to landing and approach to stall in both level and banked attitudes. Equally stringent Night flying tests are prescribed for the type ratings. All these several tests ensure that the pilot is thoroughly proficient in the operation of the aircraft both by day and by night, and for operation in emergencies with one or more engines inoperative and in instrument flying and instrument let down. It can be stated that the new flying tests are so rigorous that a person who has qualified in them is as safe for public transport as the present day knowledge, design and technique have made possible. Any greater safety can only be possible if even better aircraft and aircraft instruments are designed and perfected. It will not be appropriate to compare the ordinary 'B' licence with the proposed

Night flying.—

1. One hour night flying away from aerodrome.
2. Three landings.

For Multi-engined aircraft.—General flying with examiner on board during which the following manoeuvres shall be carried with one engine inoperative using alternate engine. All manoeuvres used in normal flight including landings.

At maximum landing weight. ;

All manoeuvres used in normal flight including take offs and landings. ;

Blind Flying.—A flight of not less than 1 hour duration in the course of which the applicant, under the supervision of the examiner shall without exterior view satisfactorily perform the following operations :—

(1) Calculate and fly at least 3 different courses of not less than 15 miles each on direction given by the examiner stating point of departure and point to be flown to.

Carry out all ordinary manoeuvres and enter and recover from spin.

Technical Examinations.—

1. Air Legislation.
2. Air Navigation.
3. Elementary Meteorology.
4. Aircraft Engines & Instruments.

and banked attitudes.

(2) *By Night at Maximum landing weight.*—

(*a*) All manoeuvres used in normal flight including take-off and landing.

(*b*) With one engine inoperative, all the manoeuvres used in normal flight including landing.

Group I—Pilot incharge Rating Single-engined Aircraft.

By Day—

(*i*) All manoeuvres used in normal flight.

(*ii*) Emergency monoeuvres, including simulated forced landings, and recovery from stall entered from both level and banked attitudes.

Group II—Second Pilot Rating—

1. Six take-offs and landings by day or night, as pilot-in-charge, or as pilot under supervision.

Technical Examinations.—

(1) Aviation Law (Part I and II).
(2) Air Navigation.
(3) Meteorology.
(4) Radio Navigation.
(5) Principles of Aircraft loading.
(6) Aircraft equipment and installations.
(7) General aspects of Airframe and power plant.

Senior Commercial Pilot licence as a 'B' Pilot is not entitled to fly as pilot in charge on licenced routes unless he possessed additional experience and qualifications are set against the Airline Transport Pilot's licence given below. The Senior Commercial Pilot is not restricted in his operation as pilot-in-charge to aircraft less than 15,000 lbs. He is, however, permitted to fly as pilot-in-charge of aircraft up to 30,000 lbs., when not carrying passengers. The pilot could fly as co-pilot on types without weight restriction provided the type was entered in the Group II. The privileges have been graded to the extent the experience and the skill of the pilot would permit and no more.

1	2	3
	Instrument Rating.— *Flying Experience.*—150 hours as pilot in-charge including not less than 50 hours of cross country flying by day. Not less than 40 hrs. instrument time of which not more than 20 hours may be instrument ground time. If undergone an approved training 30 hours of instrument time of which not more than 10 hours may be instrument ground time.	
	Technical Examination.— (1) Practical Air Navigation. (2) Radio Navigation. (3) Elementary Meteorology. (4) Instrument flight rules and flight planning.	
	FLYING TESTS.— 1. *General Instrument Flying Manoeuvres* — (*a*) Pre-flight action. (*b*) Initial climb after take-off. (*c*) Climbing and climbing turns. (*d*) Level flights. (*e*) Asymmetric Power, and (*f*) Limited panel.	
	2. Q. D. M. Let down—The candidate shall establish contact with Air Traffic control, obtain clearance to make a let down. He shall then contact ground D/A stations and to obtain Q. D. M. as required to enable— (*a*) to pick up initial approach track and home to the station, (*b*) carry out the let down procedure laid down for the aerodrome.	

	Beam let down.—Candidate shall undertake a test in one of the following :— S. B. A., I. L. S., Radio Range or Babs Eureka, G. C. A. Candidates taking tests on single-engined aircraft will be exempted from this test.	
Renewal.—10 hours solo flying in previous 6 months. In the absence of experience General flying test with examiner on board. All or any part of the test may be required.	*Renewal.*—Shall passout a check test of about one hour carried out by competent examiner whenany or all of the test for the grant of the rating may be prescribed.	
FOR ADDITIONAL TYPES— *Flying Tests*— *For single-engined aircraft.*—Three landings light and three landings with the aircraft fully loaded.	FOR ADDITIONAL TYPES : Group I tests for entry in Group I. Group II tests for entry in Group II. Technical Examination in Aircraft special.	
For multi-engined aircraft.—General flying with an examiner on board. With one engine inoperative using alternate engine. All manoeuvres used in normal flight including landings. At maximum landing weight—All manoeuvres used in normal flight including take-offs and landings.	*Renewal.*—Reasonable flying experience in each type. In the absence of flying experience any or part of flying tests and technical examination as for issue may be prescribed.	
Privileges.—May fly public Transport or Airline Aircraft by day and night on the type endorsed but when engaged on scheduled services, depending on the weight of aircraft.	*Privileges.*— *As Pilot-in-charge*— (1) Any Public Transport not exceeding 15,000 lbs. (2) Any Public Transport not carrying passengers and not exceeding 30,000 lbs. (3) Any Aerial work Aircraft. (4) Any Private aircraft listed in Group I *As 2nd Pilot.*—Any Public Transport given in Group II. Any Aerial work Flying machine.	

Existing Licence	Proposed Licence	Remarks
ADDITIONAL QUALIFICATION OF "B" PILOTS FOR OPERATION OF LICENSED SERVICES A. *For operation of aircraft with one pilot* *As Pilot in charge.* 300 hours within preceding 3 years 200 hours solo on first pilot. 100 hours cross country. 20 hours Instrument Flying, 10 hrs. simulated. *For Multi-engined Aircraft.*— 50 hours multi-engined flying 1st or 2nd pilot. 10 take-offs and 10 landings as pilot. *For Night Flying.*— 50 hours night flying as 1st or 2nd pilot. 10 take-offs and 10 landings as pilot. B. *For operation of aircraft upto 10,000 lbs. requiring 2 or more pilots.* *As Pilot-in-charge.*— 500 hours in preceding 5 years. 300 hours solo on first pilot. 300 hours cross country flying. 40 hours Instrument Flying, 20 hours may be simulated. *For Multi-engined aircraft.*— 50 hours as 1st or 2nd pilot including 10 take-offs and 10 landings as pilot. *For Night Operation.*—50 hours as 1st or 2nd take-offs and 10 landings effected as pilot. Should have in addition qualified for Command flying on the type of aircraft by successfully.	AIR-LINE TRANSPORT PILOT'S LICENCE *Age of Applicant*—Not less than 21 years. Period of Licence :—Six months following issue and renewal. *Aircraft rating.*—Types of aircraft are given in two Groups. *Group I.*—Entries are the types the holder is entitled to fly as pilot in charge. No weight limitations. *Group II.*—Entries are the type the holder is entitled to fly as 2nd pilot. No weight limitations. *Technical requirement for grant of licence.*— *Instrument Rating* should have qualified for instrument rating. *Flying Experience.*— 1200 hours flying experience comprising: 100 hours night flying. 250 hours as pilot in charge. 10 hours in previous 6 months. 100 hours cross country. 25 hours night cross country. 75 hours Instrument Flying without assistance from any other person on board. A reasonable amount of flying on the type of flying machine to which the application relates. At least 200 hours cross country flying as second pilot in flying machines requiring more than one pilot under the rules.	Under the existing rules 'B' licence pilots with varying additional flying experience are empowered to fly licensed services. The amount of additional flying experience required depends upon the weight of aircraft operated. For all aircraft operated by a single pilot of single-engined or multi-engined aircraft, 20 hours of instrument flying experience is required. For night operations 50 hrs. night flying experience is aequired. For operation of aircraft up to 10,000 lbs., requiring two or more pilots the total flying experience required is 500 hours of which 300 should be solo flying. The pilot should also have 40 hrs. instrument flying. For night operation he should have 50 hrs. night flying experience. The pilot should pass command flying tests on the type. These tests compare favourably with the present practice for Air Line Operation. For operation of aircraft between 10,000 lbs. and 35,000 lbs. the pilot should have 750 hours total experience including 500 hrs. solo 500 hrs. cross country and 50 hrs. instrument flying; and for night operations 100 hrs. night flying as 1st or 2nd pilot. For operation of aircraft above 35,000 lbs. the pilot should have at least 1,500 hours total flying experience including 1,000 hours solo as 1st pilot, 100 hours instrument flying and 250 hours night flying including 100 hours as 1st pilot. The renewal qualifications for present licence are the same as for 'B' Licence. The

carrying out Command tests detailed below :—

(1) *For operation by day.*—

(*a*) Six take-offs circuits, and landing at varying degrees of load, to include one take-off at maximum landing weight.

(*b*) Stalls, to the point of warning, with wheels and flaps up and down during normal and asymmetric flight.

(*c*) Asymmetric flight, including landings, using alternate engine(s) and emergency action with simulated failure of one or more engines during take-off.

(*d*) One approach at too low a height and one approach at too great a height with one or more engines inoperative.

(*e*) A check in instrument flying, in actual flight, comprising :—

(*i*) One figure of eight turn with 30° bank, variation in height not to exceed 200 feet.

(*ii*) Recovery from unusual altitudes, loss in height not to exceed 1,000 feet.

(*iii*) Asymmetric flight to include 180° turns with and against inoperative engine(s), loss in height not to exceed 200 feet.

(*iv*) Let down procedure applicable to the aerodrome in use, variation in speed during descent not to exceed 5 m.p.h. above or below the stipulated speed.

(2) *For Operation by night*—

(*a*) As in (a), (b), (c) and (d) above for operation by day.

(*b*) Let-down procedure applicable to the aerodrome in use, variation in speed during descent not to exceed 5 m.p.h. above or below the stipulated speed.

For co-pilot flying—Type endorsement in 'B' licence.

Provided that : half flying experience as 2nd pilot may be reckoned towards total requirement of 1,200 hours flying experience. Provided it is carried in aircraft required to carry a 2nd pilot under the rules—or in military flying machines required to carry 2nd pilot—200 hours cross country as pilot in charge is acceptable for 200 hours cross country as 2nd pilot.

Training in instrument flying on approved ground equipment may be accepted up to a maximum of 25 hours in part satisfaction of 75 hours instrument flying.

Flying Tests : The flying tests are the same prescribed for the issue of Senior Commercial Pilots licence. These are :—

1. The general flying test
2. Instrument Rating Flying Tests.
3. *Type Rating Tests.*

The type rating tests are either for Group I entry or for Group II entry.

Group I —*Pilot-in-charge Rating—Multi-Engined Aircraft.*

By day at maximum landing weight.—All manoeuvres used in normal flight including take-offs and landings—

Landing with one engine in operation

Emergency manoeuvres including simulated engine failure after take-off and approach to the stall in both level and banked attitudes.

By night at maximum landing weight.—All manoeuvres used in normal flight including take-off and landing.

With one engine in operation, all the manoeuvres used in a normal flight including landing.

proposed licences require graded flying experience:—200 ihours dual and solo including 100 hours solo for commercial Pilots who can fly aircraft up to 12,500 lbs. 700 hours flying experience which may consist of 1,000 hours co-pilot flying and 200 hours pilot in charge flying for flying in charge of aircraft up to 15,000 lbs. with passengers and aircraft up to 30,000 lbs. without passengers. For operation of aircraft above 15,000 lbs. as pilot in charge with passengers the licence required is Airline Transport Pilot's Licence. For this total experience of 1,200 hours is required of this 250 hours should be pilot in charge experience. Again the balance of 950 hours may be obtained by putting in 1,900 hours as co-pilot. In addition the pilot should have 75 hours instrument flying experience and 25 hours night cross country experience. It is clear that the requirements for the new licence are more stringent as far as Instrument Flying experience is concerned. The greatest difference however, is in the fact that the pilot should have instrument rating which is obtained by passing very stringent instrument flying tests. It is these stringent instrument flying tests that make the future Airline Operator safest for Airline Operations. Another important difference between existing licence conditions and the future licences is that whereas the present licences are renewed on the basis of flying experience, the new licence holders, have to do stringent flying tests every year to keep their instrument rating current. The rating lapses if they fail in the flying tests.

1	2	3
For aircraft between **10,000** *lbs. and* **35.000** *lbs.—* *As pilot in chrage.—* 750 hours in preceding 5 years. 500 hours solo. 500 cross country. 200 hours as 1st or 2nd pilot on multi-engined aircraft including 10 take-offs and 10 landings and 100 hours in aircraft in this class. 50 hours instrument flying, 25 simulated conditions.	*Group I.—Pilot in charge Rating. Single-Engined Aircraft* By day : All monoeuvres used in normal flight. Emergency manoeuvres including simulated forced landings and recovery from stalls entered from both level and banked attitudes.	The new licence rules provide for Assistant Instructors Rating and Instructors Rating. The existing rules provide only for Pilot Instructors licence.
For Night Operations.—100 hours as 1st or 2nd pilot and 10 take offs and 10 landings as pilot. Should have qualified for Command flying on the type.	Group II.—Second pilot rating 6 take-offs and landings by day or by night as pilot in charge, or as pilot under supervision.	The requirements for the new ratings are that the candidate should have undergone a course whose syllabus had been approved. This ensures high standards for the grant of the ratings.
For Co-pilot flying—type endorsement is adequate. *For aircraft exceeding* **35,000** *lbs.*— 1500 hours within preceding 7 years. 1000 hours solo or 1st pilot. 1000 hours cross country flying. 500 hours solo or 1st pilot on multi-engined aircraft and 25 hours in aircraft of this class. 100 hours Instrument flying, 50 hours may be simulated.	*Technical Examinations*— (1) Aviation Law. (2) Flight Operation. (3) Air Navigation. (4) Meteorology. (5) The Interpretation of navigational aid, identification signals. (6) Theory of flight and aircraft operating. (7) Aircraft equipment and installations. (8) Airframe and Power plant maintenance.	Another important feature of the new ratings is that the candidate is required to undergo flying tests every year. This is in great contrast to the current practice where the licence is renewed on basis of instructional experience. Any deterioration in the instructor does not get noticed during a normal renewal. Again for the new ratings the flying tests are carried out by approved examiners. This also makes it possible to ensure maintenance of minimum standard and in addition it would help standardisation of pattern and technique of instruction.
For night operation :— 250 hours night flying. 100 hours as 1st pilot or solo and 10 landings and 10 take offs effected as pilot. Should have qualified for Command flying on the type.	***Renewal.***—Reasonable flying experience as pilot of flying machines during six months before renewal. May be required to produce reasonable flying experience in each type for which renewal is desired since the type was entered on the licence. In default of such evidence applicant may be required to undergo all or any part of the practical flying tests and technical examinations specified for grant or extension.	
For co-pilot flying :—Should have type endorsement on 'B' licence.	*Extensions of the licence.*—For entry of a type of aircraft in Group I the flying tests prescribed for Group I entry should be passed.	

	For entry of a type of aircraft in Group II the flying test prescribed for Group II entry should be passed. In addition the candidate should pass a technical examination airframes and engines (special) pertaining to the type of aircraft.
	PRIVILEGES.— The holder is entitled to fly : (1) *As Pilot in charge of* — (*a*) Any public transport flying machine. (*b*) Any aerial work flying machine. (*c*) Any private flying machine as specified in Group I. (2) *As Second Pilot of* :— (*i*) Any public transport flying machine carrying passengers. (*ii*) Any public transport flying machine not carrying passengers. (*iii*) Any aerial work flying machine. (*iv*) Any private flying machine specified in Group II.
To Act as Assistant Insrtuctors—'B' Licence holders are permitted to act as assistant pilot instructors under licensed pilot instructors. No additional qualifications above a 'B' licence is required. These instructions can only be given under the supervision of a Pilot Instructor. The Assistant Instructors cannot send a pupil on 1st solo or give instruction in Acrobatics.	*Rating to act as Assistant Instructor*—This rating may be included in Private Pilots licence, or Commercial Pilots licence or Senior or Commercial Pilots licence or Airline Transport Pilots licence. *Requirements for grant of Rating.*—(*a*) To produce evidence of 100 hours flying as pilot in charge of which not less than 30 hours were carried out in the class of flying machine to which the application relates. (*b*) To produce evidence that he has passed a flying Instructor's course, the syllabus of which has been approved.

1	2	3
	(*c*) To undergo an oral examination in the subjects of such a course, and (*d*) To undergo a flying test, with an approved examiner on board, for the purpose of determining the applicants' practical ability to act as an Assistant Instructor. *Period of Rating.*—12 months following grant or renewal of rating. *Renewal of Rating.*—The rating is renewed every year after the candidate undergoes successfully a flying test with an approved examiner on board. *Extension of Rating.*—The candidate should successfully undergo flying test with an examiner on board for each extension of rating.	
Privileges:—To give instruction under the supervision of a licensed instructor but not permitted to send a pupil on first solo or give instruction in acrobatics.	*Privileges.*—Valid for giving instruction under the direction of competent instructor but does not authorise the holder to send a pupil on first solo or first solo cross country flight.	
PILOT INSTRUCTOR LICENCE. *Requirements for grant*— *Flying experience.*—500 hours solo experience. *Flying Tests.*—Practical flying tests as may be required by an examiner on board.	*Rating to act as Instructor.*—May be included in a Private, Commercial, Senior Commercial or Airline Transport Pilot's licence and is limited to giving of instructions on such types of flying machines, specified in the Aircraft Rating of the licence as the holder is entitled to fly as pilot incharge.	
Technical Examination.—Examination in principles of Instruction or its equivalent. The examination shall include a demonstration by the candidate of his ability to lecture on any subject of examination for the Pilot's 'B' licence.	*Requirements for grant of Rating.*—(*a*) To produce evidence that he has carried out not less than 400 hours flying as pilot in charge of a flying machine, of which not less than 30 hours shall have been carried out on the class and type of flying machine to which the application relates.	

	(ii) His flying experience includes not less than 100 hours flying in the capacity of Assistant Instructor. (b) To undergo a flying test with an approved examiner on board for the purpose of determining the applicant's practical ability to act as an Instructor; and (c) To satisfy the requirements for a rating to act as an Assistant Instructor specified in (b) and (c) above. *Exemption for Instructors of I.A.F.*—An applicant who is a qualified pilot instructor in the Indian Air Force holding 'B' category and above may be exempted from any part or all of the tests prescribed for the grant of the Rating.	
Period of Licences—12 months following grant or renewal.	*Period of Licence*—12 months following grant or renewal of rating.	
Renewal—At least 50 hours instruction in preceding 12 months.	*Renewal of Rating.*—The rating is renewed every year after the candidate undergoes successfully a flying test with an approved examiner on board.	
Extension.—Same as extension of a type on 'B' licence.	*Extension of Rating.*—The candidate should successfully undergo a flying test with an examiner on board for each extension.	A new Rating has been introduced for giving instruction in flying of gliders above 1250 lbs. weight towed by flying machine. The Rating is given in a Pilot licence in either Private pilots licence or Commercial Pilots licence or Senior Commercial Pilots licence or Airline Transport Pilots' licence. No Rating is required if the weight of the glider is less than 1250 lbs. Further no rating is required for flying of gliders operated by mechanically driven winch or Motor tow or other similar means.
Privileges.—Valid for giving instruction in type of aircraft given in 'B' licence. At present there are no licence or Rating for instruction in flying of gliders or flying gliders towed by flying machihes.	*Privileges.*—Valid for giving instruction in the types of aircraft given in Group I of the licence.	
	Gliders towed by Flying Machines.—This rating is for giving instruction in flying gliders (of over 1250 lbs.) towed by flying machines.	
	Requirements for grant of rating.—(i) Evidence of 400 hrs. flying as pilot incharge of a glider or flying machine, of which.	

1	2	3
	(*a*) not less than 30 hrs. flying and 80 landings shall have been carried out by him as pilot incharge of glider, and (*ii*) not less than 25 hours flying, including 5 flights during which a glider has been towed by the flying machine, and released therefrom, shall have been carried out by him as pilot incharge of a flying machine, (*b*) To undergo an oral examination in the subjects of gliding Instructors course conducted in accordance with an approved syllabus. In addition, the applicant may be required to undergo a flying test, on a flying machine or a glider, or on both, with an approved examiner on board, for the purpose of determining his practicability to give instruction in flying gliders towed by flying machines. *Provided*— (*a*) Applicant's holding Instructors Rating, and (*b*) Qualified Instructor of Indian Air Force in flying machines and glider may be exempted from any or all of the requirements.	
	Requirements for the grant of towing Rating.—Applicant should hold commercial or senior commercial or Airline Transport Pilot's licence. *Flying Experience.*—In preceding 12 months (*i*) As pilot in charge of flying machine towing or glider, not less than 5 hrs. flying, including at least 10 flights, not less than	This is a new rating for towing of gliders. At present there is no licence or rating for this kind of flying. This rating has become necessary as present day developments make the use of towed glider as a transport feasible.

3, of which shall have been carried out at night.

(*ii*) As pilot in charge of glider towed by flying machine and released therefrom, not less than 3 hours flying, including at least 10 flights, one of which shall have been carried out at night.

(*iii*) Gliders approved for towing. Aircraft approved for towing, flying characteristics and instruments of gliders. Limits of loading for such combinations. Types of tow ropes. Inspection of tow ropes and quick release devices.

(*iv*) Aviation Law with particular reference to responsibility of a pilot in towing operations.

DIRECTIVES RECENTLY ISSUED

151. **New Qualifications for a co-pilot to fly at night.**—During the course of his evidence Mr. A. C. Gazdar, representative of the Air India and Air India International Ltd., brought to our notice the fact that a directive was issued by the D.G.C.A. dated the 18th June, 1952, calling upon the airlines not to employ a pilot as a co-pilot on a scheduled air service operated wholly or partly by night unless he has a permanent endorsement of the type of aircraft operated on the service on his 'B' licence and has, in addition, a minimum of 1000 hours of experience as co-pilot on that type of aircraft, of which at least 10 hours should be by night. The directive added that it was issued for the purpose of ensuring greater safety of operations. Mr. Gazdar pointed out to us that the first result of compliance with this directive was the grounding of a good number of the co-pilots of the company. As a result of further representation, the above directive was modified on the 6th September, 1952. If the co-pilot had the minimum of 1000 hours experience as co-pilot on the type of aircraft to be flown or on a type of the same class of aircraft, he could be engaged as a co-pilot to fly on the service mentioned above. If the pilot holding the pilot-in-command certificate of the type operated, or if the pilot had the permanent endorsement for the type operated plus a pilot-in-command certificate for a type of the same class, he could also go in as a co-pilot on the service mentioned above. It will be realised that this was tantamount to asking the pilot-in-command to serve as co-pilot. Such a position would hardly be welcomed by pilots holding the pilot-in-command certificates. It is admitted by the D.G.C.A. that the requirements laid down in the directive issued by him would necessitate the amendment to schedule VIII of the Indian Aircraft Rules. It was brought to our notice that the Director-General of Civil Aviation issued this directive as he thought that it would promote greater safety. We can always appreciate the necessity of demanding compliance with stricter requirements of operations by Air-lines on the ground of promoting greater safety. As we have stated elsewhere, safety should be the prime consideration. We therefore, recommend that such directives must, except under extraordinary circumstances, conform to the Law as it stands or they should only be enforced when the necessary change in the Law is made for that purpose.

152. **Pilot-in-Command Certificate.**—Under Para. 7, Section 'C' Schedule VIII of the Indian Aircraft Rules, 1937, it is competent to the Check Pilots of the airlines, approved by the D.G.C.A. to carry out the flying tests in connection with the issue of the pilot-in-command Certificate. This right of carrying out and certifying the flying tests in connection with the grant of pilot-in-command certificate in 'B' licences was taken away from the Check Pilots of the airlines, approved by the D.G.C.A. in accordance with a directive issued by him on the 29th May, 1951. The directive further added that Shri G. C. Arya, Vice-Principal, Civil Aviation Training Centre, Allahabad, was appointed as a Government Check Pilot for carrying out the flying tests on all multi-engined types of aircraft for the purpose of granting the pilot-in-command certificates and type endorsements. This directive further enjoined on all scheduled and non-scheduled operating companies that if they desired to have the

flying tests of their pilots on multi-engined types of aircraft carried out by the Government Check Pilot for the purpose of obtaining a pilot-in-command certificate or a type endorsement on the pilot's 'B' licence, they should first carry out the tests with their own Check Pilots and, if the pilots are found fit, the company should forward reports to the D.G.C.A. office, with a copy to the Principal, Civil Aviation Training Centre, Allahabad. Arrangements will be made thereafter for carrying out the flying tests of the pilots on companies' aircraft at their headquarters station within two months of the receipt of the application for that purpose. This means that the airline companies would have to incur double expense for the purpose of arranging for the flying tests which their pilots will have to undergo for obtaining their pilot-in-command certificate. As the airlines pointed out that the delay in the carrying out of the second test by the Government Check Pilot would prevent them from utilising the services of their pilots as commanders for a period of two months, although they had passed their tests, the D.G.C.A., by a second directive, issued on the 21st June, 1951, agreed that provisional certificate should be given for a period of two months during which the Check Pilot of the D.G.C.A. would put the pilot in question to a second test.

153. By a subsequent circular, dated the 29th August, 1951, the companies were further informed that the pilot-in-command certificates issued as a result of flying tests carried on by their Check Pilots approved by the D.G.C.A. would be accepted as permanent certificates. The right was, however, reserved to the Government Check Pilot to carry out a second test for that certificate at such time as he considered fit for that purpose. The pilot who would pass the second test carried out by the Government Check Pilot will continue to retain his pilot-in-command certificate. The certificates of the pilots who fail in the tests carried out by the Government Check Pilot will be cancelled.

सत्यमेव जयते

154. It will not be difficult to appreciate the difficulties of the situation in which the airlines were thus placed by the issue of successive directives for the same purpose. The recognition of the tests carried on by the Check Pilots of the airlines, and the pilot-in-command certificate issued as a result thereof, is implicit in the last directive, brings home clearly to our mind that within a period of three months the confidence of the D.G.C.A. in the competence and judgment of the Check Pilots of the airlines was fully revived, which the first directive revealed as completely shaken. But apart from these difficulties and the extra financial burden which would be imposed on the airlines for making their pilots undergo double tests for the pilot-in-command certificate, it is fair to ask whether the law permits the Government Check Pilot to demand a second test when the first test has been carried out by the Check Pilot of the company, approved by the D.G.C.A. in accordance with the rules, and the pilot has been granted his pilot-in-command certificate. Neither does Rule 19, regarding cancellation of a licence, or a certificate, nor does Rule 43, regarding the renewal of licences, vests any power in the D.G.C.A. to demand a pilot to undergo a second test during the currency of his licence or certificate. We are therefore, constrained to reiterate once again that the directive mentioned above is not *intra vires* of the present Act.

CHAPTER V

OPERATIONAL EFFICIENCY

155. **Renewal of licences recognises the need for operational efficiency.**—Both the existing licensing rules and those proposed by us provide for ground training and flying training. They lay down the requirements of minimum flying experience and the flying tests which will have to be undergone and the technical examinations that will have to be passed by the candidates desirous of obtaining the different categories of licences. The privileges attached to the different licences cover the entire field of private flying, aerial work flying and public transport flying with or without passengers. The licences are current only for a fixed period. They have to be renewed at stated intervals. In addition to the continued medical fitness, pilots desirous of renewing their licences will have to show evidence of certain flying experience within a stated period before the date of the renewal of their licences. This is a remarkable feature of the grant of licences peculiar only to the air transport industry. It shows that in the field of transport, greatest emphasis is laid in the air transport industry for the requirements of safety and the continued efficiency of the pilots for carrying on air operations. It is, therefore, evident that the principle of operational efficiency forms the basis of the continuous possession of the licence which a pilot can hold and the privileges which he can exercise under the same.

156. **Need for continuity of flying experience.**—Experience has shown that if a pilot has not been doing any flying whatsoever for over a period of say, one month, there is a possibility of his not retaining that full skill and power which are quite vital for the safe operation of a modern heavy transport aircraft, carrying passengers, and particularly under instrument flying conditions. As the licensing rules do not restrict a pilot from undertaking the flight as pilot-in-charge of a heavy air transport carrying a full complement of passengers under such conditions, it is considered desirable that some provision should be made to ensure that a pilot, who has temporarily gone out of practice as a result of absence of recent flying experience, is enabled to maintain and retain his usual competence and efficiency.

157. **Periodic instrument flying experience or practice essential.**—We understand, in this connection, that airline pilots in the U.S.A. are debarred from operating a scheduled service with passengers if they have not had any flying experience in the previous 30 days. This necessitates the airline pilots, who may have gone on leave for a period of one month and over, undergoing about an hour's flight without passengers on the type of aircraft before they are allowed to undertake a scheduled flight. Just as recent flying experience on the type of aircraft operated on scheduled services is considered essential for safe operation, periodic experience in instrument flying and instrument let-down procedures is also considered vital for ensuring the safety of operations on scheduled services. It is, therefore, the normal practice of the international airlines, we understand, to insist on the pilots in-charge of their machines to undergo instrument let-down procedures on Link Trainer at stated periodical intervals during the year.

158. **Existing legislation for operational efficiency.**—All scheduled air transport services are, under the current Indian Aircraft Rules, licensed by the Air Transport Licensing Board. It is also laid down that the Air Transport Licensing Board should satisfy themselves as to the technical competence of the aircrew employed by the Company seeking a licence for a scheduled service. They have to satisfy themselves that the technical personnel possess adequate qualifications "for safe operation as related to the service proposed, the route to be traversed, the aircraft to be used and the operation and maintenance procedure to be adopted."

159. **Proposed new rules and periodical checks.**—While prescribing the additional flying experience requirements that should be possessed by pilots operating scheduled services, paragraphs 5 and 6 of Section 'C' of Schedule VIII of Chapter II of the existing rules lay down that they shall, while engaged on a licensed air transport service, undergo every three months a check in instrument flying in actual flight or each alternate check in approved simulated conditions under the supervision of an examiner approved by the D.G.C.A. The D.G.C.A. has now made the suggestion that the above checks should be carried out by the check pilots directly appointed by him. The new licensing rules, which we have proposed, are comprehensive, and ensure the competence of the pilot on the type of aircraft operated under all conditions of flight, including instrument flying and night flying. Moreover, under the proposed new rules, the instrument rating of every airline pilot will have to be renewed every year after putting him to severe instrument flying and emergency flying tests. We, therefore, recommend that paragraphs 5 and 6 of Section 'C' of Schedule VIII of Chapter II of the existing rules should be deleted.

160. **Practice in the U.K.**—The U.K. Legislation lays down different categories of licences for all flying operations. The period of currency of these licences is limited to 12 to 24 months in the case of Private Pilot's licences, and to 6 months in the case of Commercial licences, subsequent to their issue of renewal. The privileges of these licences are such that persons holding current licences could exercise them without having the necessity to acquire or fulfil any other additional qualifications or experience. Thus, an airline transport pilot, holding a current licence, could operate as pilot-in-charge of an airline transport aircraft of the type given in his licence, with passengers, any time during the currency of his licence. He is not under an obligation to undergo any periodic checks or tests during the currency of his licence for the purpose of exercising his privileges. All commercial pilots in the U.K. engaged in air transport work have, however, to keep their instrument rating current. For this purpose, every commercial pilot has to undergo flying tests in instrument flying and emergency manoeuvres to qualify him to renew his instrument rating every year.

161. **Practice in the U.S.A.**—The practice in the U.S.A. is, as referred to above, that airline pilots not possessing flying experience on the type of aircraft to be operated in the previous one month are

required to undergo at least one flight on the type of aircraft without passengers before undertaking a scheduled flight with passengers. Apart from this condition, there is no other restriction on the privileges of pilots holding current licences and exercising the privileges attached to them. We are, however, aware of the fact that the airline pilots in the U.S.A. may be subjected to surprise checks by Government inspectors while they are engaged in scheduled services. In other words, a Government inspector may board a scheduled service aircraft and inform the pilot thereafter that the pilot is under check or supervision. The inspector may assess the pilot as the result of this check as coming up to the standard of efficiency or not coming up to the standard of efficiency. In case the pilot does not come up to the standard of efficiency, he is downgraded until he passes another check by an inspector and is graded up again.

162. **The U.K. and U.S.A. laws do not impose such periodic checks.**—There is, however, no such legislation in the U.K. or U.S.A. as is in existence in India today, which imposes legal obligations on the airline pilots to undergo quarterly periodic checks in instrument flying and instrument let-down. We have already recommended that this legal obligation of the quarterly checks imposed on the pilots and the power vested in the D.G.C.A. for that purpose after the licence has been issued by him should be done away with.

163. **Proposal for refresher training of airline pilots.**—We have already referred to in paragraph 155 to the recognition of the principle of maintaining operational efficiency. We therefore consider it desirable for implementing that principle that refresher training should be given to pilots engaged in scheduled air transport service. We, therefore, recommend that pilots engaged in in-charge flying and co-pilot flying should undergo 2 and 4 hours refresher flying training respectively every 6 months. These hours should include the flying tests prescribed for the renewal of the instrument rating to which a reference has already been made in the above paragraphs. These flying tests will be carried out by the check pilots appointed by the Company for that purpose.

164. **Training, practice and periodical tests for operating crews of aircraft flying on scheduled journeys.**—In order that all aircrew engaged on scheduled services can operate their services efficiently all the time, we recommend that they shall undergo training, practice and periodical tests detailed in the following paragraphs. Facilities for undergoing these training, practice and periodical tests should be provided by the operating company licensed to operate the route. In the subsequent paragraphs the term "operator" shall apply to the licensed operator.

> "1. The operator of the aircraft (hereinafter in this section called the "operator") shall provide means for every member of the operating crew of the aircraft to have training, practice and periodical tests for the purpose of ensuring that each such member is competent to act in the capacity in which he is acting as such member, regard being had to the type of the aircraft and to the type of any equipment which he is required to use. The periodical tests of pilots of aircraft shall be so arranged that each

pilot is tested twice within any period of one year, the period between each such test being not less than four calendar months.

2. Before a pilot is assigned as pilot-in-charge of an aircraft on a route for which he has not previously been regarded as qualified, the operator shall ensure that he has—

(a) made two one-day flights over that route within the immediately preceding twelve calendar months, including one flight within the immediately preceding two calendar months, either as second pilot in any type of operation or as pilot-in-charge in an operation other than a scheduled journey.

(b) during the immediately preceding twelve calendar months—

(i) carried out in flight the established instrument approach procedures at each aerodrome of intended destination on the route which may need to be used under I.F.R. weather conditions; and

(ii) carried out in flight or by simulated means the established instrument approach procedures at each other aerodrome on the route which may need to be used under I.F.R. weather conditions:

Provided that compliance with the provisions of paragraph (b) (i) and (ii) of this Regulation shall not be required at aerodrome equipped with a precision or runway approach system and having approach procedures identical with those which the pilot has demonstrated his competence to carry out, if it can be shown to the satisfaction of the Minister that the surrounding terrain of any such aerodrome presents no special difficulties.

(c) been certified as competent to fly as pilot-in-charge of aircraft on that route by a pilot who is himself competent so to fly and who is authorised by the operator to give such certification.

(3) The operator shall take steps to ensure that a pilot who has previously been regarded as competent to act as pilot-in-charge of aircraft employed on a particular route unless he has, within the immediately preceding twelve calendar months, made two one-way flights over the route either as pilot-in-charge or as second pilot or unless he has complied with the requirements in paragraph (b) of Regulation 2.

(4) In respect of flights carried out by an operator over a new route the Central Government may, at their discretion and subject to such conditions or limitations which may appear to them to be required by written authority

grant exemption from all or any of the requirements in Regulation 2:

Provided that, on flights which are the subject of such exemption, passengers shall not be carried for hire or reward.

(5) The operator shall ensure that members of the operating crew of aircraft employed by him are properly instructed in the use of the life saving equipment required to be carried in the aircraft and in the measures to be taken for the evacuation of the aircraft in emergency. The competency of each member in these matters shall be checked by tests carried out by the operator at least once in any period of twelve calendar months."

165. The purpose of the recommendations made in the above paragraph is to place an obligation on the aircraft operator to introduce an apropriate system of checking to ensure that a safe standard of operation is maintained. The Government should, however, by periodic inspection visits to operators, exercise a supervisory control by seeing that, through examination of the records, an operator has complied with the requirements of the above regulation. Should it appear to the Government that the requirements were not being complied with, the action would be to advise the operator of the shortcomings of the system and to ensure that these are put right. If administrative enforcement in this way proved ineffective, provision should be made for the institution of legal proceedings against the operator. It must be made clear that administrative supervision may take the form of a personal observation, by an officer, of a check flight conducted by an operator. The function of the observer in such a case, however, is solely to observe the manner and conduct of the scope of the check and not to usurp the function of the operator's Check Pilot. We further recommend that the supervisory control visualised in this paragraph should be exercised by the Civil Air Board (*vide* Chapter XI) and that it will be for the Civil Air Board to appoint the necessary observer for that purpose.

166. **Conditions for avoidance of fatigue of aircrew.**—It is natural that a pilot in charge of an aircraft will experience normal mental strain and physical fatigue during the course of his flight. These normal strain and fatigue are likely to increase when he has to fly in bad weather or to manoeuvre his machine for landing under poor visibility conditions. The length of the flight, the nature of the route to be flown, the weather on the route, the waiting period to be undergone at ports of call, are also elements which are likely to increase or decrease his normal strain and fatigue. These mental strain and physical fatigue are bound to affect the standard of his operational efficiency. We have already referred, in the above paragraphs, to the necessity of retaining and maintaining the operational efficiency of the pilot in flight at the highest level possible. One cannot avoid all strain and all fatigue in air operations. It is, however, of vital importance to ensure that the mental strain and the physical fatigue do not reach such a level as may interfere with the ability, competence and operational efficiency of the pilot to fly his machine. That is the view point from which the question has to be examined and recommendations, if any, are to be made for avoidance of that

intensity of strain and fatigue which would militate against the required standard of operational efficiency.

167. It is remarkable that the memoranda that have been submitted to us in response to our questionnaire, and the evidence which the witnesses have been pleased to give before the Committee have, broadly speaking, not expressed any considered views or made any useful and constructive suggestions for the avoidance of this strain and fatigue. Many of them have, however, advised that we should await the final recommendations of the International Civil Aviation Organisation before dealing with this question.

168. It is also true that this is a highly technical subject. It is desirable, therefore, to have before us the considered opinion and suggestions of the highly qualified medical authorities who are really competent to assess the effects of strain and fatigue experienced by the pilots and to lay down conditions and make suggestions for their avoidance. When we say this, what we mean is that such strain and such fatigue should be avoided as would affect the real operational efficiency of the pilot and thereby introduce an element of hazard in the flight.

169. The Chairman, however, had discussion with the General Secretary of the International Transport Workers' Federation on this subject while he was in London and placed before the Committee a Paper which was submitted by that Federation to the International Transport Workers' Congress held in Stockholm in the latter half of 1952. The views expressed in that Paper seem to be based on the studies of the subject by competent medical authorities. We would, therefore, like to invite attention to some of their salient features which deserve consideration in the examination of this important problem. They are as follows:

170. **Deleterious effects of flying.**—An analysis of a very large number of cases of field survey carried out among aircrew personnel of all categories has revealed that the deleterious effects of flying on aircrews could be grouped under two very broad categories.

(1) Favourable weather conditions.
(2) Unfavourable weather conditions.

In addition to these broad classifications, the amount of deleterious effect could be further classified under three sub-divisions.

(1) Short haul operations
(2) Medium haul operations.
(3) Long haul operations.

The evidence of field survey data is emphatic that the rate of exhaustion is *quite slow* in the case of flight operations under favourable weather conditions and quite rapid in the case of unfavourable weather conditions which involve, instrument take off, instrument flight and instrument touch-down.

171. **Exhaustion under different kinds of flight.**—That Paper also revealed a study of the conditions that cause exhaustion under

different kinds of flight operation. They may be summarised as under:

(a) *Short haul operations under favourable weather conditions.*—The fatigue factors are:—

(1) High temperature of cabin at the commencement of flight.
(2) Sudden drop in temperature and noticeable draught during climb.
(3) Severe glare of sun at height above clouds.

(b) *Under unfavourable weather conditions.*—As the automatic pilot cannot be used under these conditions, it imposes a-severe strain on the pilot due to—

(1) unceasing watching of the instruments during take off, flight and touch-down;
(2) extreme concentration in piloting;
(3) reduced visibility imposes additional strain on the eyes;
(4) the necessity to listen to R/T imposes additional strain.

All the above strains are further accentuated under night flying conditions.

(c) *Medium haul operations.*—The fatiguing factors in medium haul operations are—flights at 10,000 to 14,000 feet in unpressurised cabins—these are due to draughts, cold temperature and inadequacy of oxygen—these defects are greatly overcome in pressurised cabins.

(d) *Long haul operations.*—In this class of operation, in addition to the factors that exist in medium hauls is the effect of wide variation in climatic conditions. Pilots move from the temperate to the tropical climate and *vice versa.* In addition to the duration of flight which exhausts the vitality of the crew, the factors that continually wear into the crews' energy or capacity for efficient operations are—

(1) Vibration.
(2) Engine noise.
(3) Excessive concentration during flights in bad weather.
(4) W/T traffic.
(5) Variation in climate (temperature draughts in cock-pit.)
(6) Excessive duty hours.

172. **Factors that cause exhaustion.**—High Noise Level.—Short exposure to high noise levels—the effect on both hearing and nervous system is only temporary. In case of continuous flying, recovery from general fatigue and loss of hearing may be delayed. There is considerable evidence that existence of high noise levels in aircraft has definitely harmful effects on the human organism and that more adequate proofing of equipment is greatly to be desired. High noise level is best controlled at the source of the noise itself. In recent jet aircraft, specially the pilot's cabin seems to be free from high noise levels.

Vibration.—The sources producing vibration are propellers, engines and aerodynamic disturbances. Effect of vibrations are: reduction in the reactivity of central nervous system, visual fatigue and increased susceptibility to air sickness, and general fatigue and exhaustion. May also contribute to the inhibition of gastric secretions and gastro-intestinal motivity. The marked effect is on binocular visual acuity. This may lead to head aches, dizziness, eye strain and even a feeling of nausea and actual air sickness. As in the case of noise, reduction and vibrations to tolerable levels must be tackled in the design of aircraft.

Ventilation.—Circulation of air within aircraft is essential for control of temperature, humidity and the presence of carbon monoxide and other anoxious gases. Ventilation is also essential for draughts.

Humidity.—If below 30 per cent. and above 70 per cent. it is uncomfortable to normal persons. But to persons with dryness of nasal membrane high humidity is preferable and for persons with nasal catarh dryness is preferable. On the whole crew and passengers complain of low humidity at altitude.

Recommendation.—Use of humidifiers and 25 per cent. to 50 per cent. humidity in cabins.

Temperature.—Desirable to lay down temperature limits in the cabin.

Airborne diseases.—De-insectization and immunization of passengers against certain diseases is insisted upon. These precautions are essential in future. Infected insects carried in aircraft could spread epidemics in uninfected areas. Persons may get infected in the flight and carry the infection to new areas.

Carbon Monoxide.—Danger from engine exhaust does exist. Should be less than ·003 per cent.

Anoxia.—or lack of oxygen. Dangerous to air crew. Cannot detect onset.

Pressurisation.—Advantages are—Freedom of movement, conversation, constant and adequate supply of oxygen. Less noise and vibration levels. Less discomfort to middle ear and more even cabin temperature.

No evidence that presurisation is harmful. Flight Time means the total time from the moment when an aircraft moves under its own power for the purpose of taking off till it comes to a stop after landing.

173. **Recommendation for hours of work of aircrew.**—In view of what we have stated above, we consider it a matter of practical necessity to await the final decisions of the International Civil Aviation Organisation on this subject and defer taking any action by law for regulating the flying hours of pilots per day, per week, per month and per year. Para. 4 of Rule 42 of the existing Indian Aircraft Rules limits the flying hours of airline pilots to a maximum of 125 hours in any 30 consecutive days. While we would not like to disturb this existing provision of the Rule, we would, in view of all

relevant practical considerations affecting the problem, strongly recommend that the Government should persuade the airline operators in the country to voluntarily restrict the maximum number of hours up to which they should allow their pilots to fly, to 100 per month and 1,000 per year.

CHAPTER VI

POLICY OF RECRUITMENT AND TRAINING

174. **New qualifications basis of future training.**—We have, in the previous Chapter, already dealt with the new qualifications which should be prescribed for the issue of Private and Commercial Pilots' Licences. Future training will have, therefore, to lay down such a programme of ground instructions and flying experience as would enable the pupils to acquire the new qualifications that would be required of them. The acquisition of night rating and instrument rating will form an integral part of their future training. As it has already been stated, the privileges to be attached to the Licence in the future, will call for higher ground instruction, greater flying experience, and more stringent flying tests than in the past. Machinery of training will have, therefore, to provide for such single engined and twin engined aircraft and such other equipment as Link Trainer, etc., as would enable the pupils to acquire the qualification recommended by us. It will be essential for the training Centres to appoint Instructors possessing high qualifications according to the modern standards and capable of discharging their responsibilities in an effective and satisfactory manner. We have already set forth our views in regard to the nature of the training given at the Flying Clubs and at the C.A.T.C. The considerations which we have set forth in this paragraph have influenced us in examining the role which they should play in the field of civil flying in the future.

175. **Flying Clubs and Sport Flying.**—Flying may be divided into two broad categories. Private Flying and Public or Air Transport Flying. Private Flying is for pleasure. It may be called Sport Flying. It may be for one's own business. Public flying is to follow the profession of a pilot. It is for building up a career in the Air Transport Industry. A person who acquires a Private Pilot's Licence is not allowed to fly any machine for remuneration. He does not find a place in the field of Public Transport. He does not, therefore, require the same stringent qualifications as are demanded of one who has to fly on a scheduled or a non-scheduled service. It is the love of flying for the sake of flying and cultivating the sense of the air which broadly distinguish the sport for private flying from public flying. Flying Clubs movement was, therefore encouraged and financially assisted, as mentioned in a previous Chapter by the Government of India, for popularising civil flying and developing the sense of the air amongst the people of the country. It will, therefore, be recognised that training for private or sport flying should be given at the flying clubs for which they were mainly established and we, therefore, recommend that training in private or sport flying should be continued to be given at the flying clubs in the future as in the past.

176. **Short flying makes little progress.**—We have just recommended that training in private or sport flying should be given by the flying clubs. During the course of our visit to the flying clubs, it was, however, brought to our notice by the representatives of all the clubs that there was hardly any appreciable demand for merely sport or pleasure flying. It was the training of pilots for 'B' licences which largely contributed to the flying activities of the clubs during the post-war period. As pointed out in paragraph 15 above, out of a total number of 35,864 hours flown at all the clubs for all purposes in 1950-51, 25,266 hours, which represented 70 per cent. of the total flying activities at the clubs, were flown for 'B' licences. It will also be interesting to note from the statement marked 'A', giving the number of 'A' licences issued to Indians in this country from 1928 up to 31st December, 1951, that out of a total number of 1,810 A' licences issued to Indians up to the end of 1951, only 542 licences issued in favour of Indians were current at the end of that year. It has been further brought to our notice by the D.G.C.A. department that some of these 'A' licence holders would be holding the 'B' licences also. The number of pure sport fliers would, therefore, be less than 542. Even if the number of sport fliers is taken as 542, it will be agreed that looking to the number of people dwelling in the places round about the flying clubs in this country, that number is very small indeed. We cannot, therefore, help saying that the love for sport flying has not made much progress in this country. We have already pointed out that the number of those who go in for joy rides is comparatively speaking very insignificant. Moreover, the number of aircraft registered in the name of private owners is only 149. All these facts leave the clear impression on our mind that private or sport flying has not made such progress as would ensure the continuance of such flying activitits of the clubs as would maintain their economic stability with the help of the subsidy that they are getting at present. We, however, propose to examine the question in a subsequent Chapter as to how these flying activities could be ensured and how the economic stability of the clubs could be maintained.

177. **Training of Commercial Pilots.**—It has already been stated in the above paragraph that the flying clubs should give training for obtaining the Private Pilot's Licence, or say for sport flying. The question which we have now to consider is as to who should give training to those who want to obtain the Commercial Pilot's Licence. We have already mentioned the nature and the extent of the higher qualifications that will be required for this purpose in the future.

178. **New qualifications require special training institutions.**—There has been a continuous technical progress in the construction of aircraft and engines. Their size, design, and speed have undergone a radical change and remarkable development. New instruments requiring greater scientific knowledge have been installed in the aircraft as aids to navigation. Aircraft have to fly over longer and often more difficult routes. They have often to land in bad weather conditions with the aid of radio range, the instrument landing system or the ground control approach system. It has, therefore, been recognised that Pilots who have to fly these modern aircraft should have a thorough professional and technical training and should be able to display great care and skill in handling them.

They should have a good grounding and wide knowledge of such subjects as meteorology, navigation, map reading, direction finding and different landing systems, etc. The modern tendency is to do away with the wireless operator, the flight navigator, and even the flight engineer. The Pilot of the future will have, therefore, to possess such knowledge and to acquire such experience as will enable him to discharge also these additional duties and responsibilities. The training of the Pilot has, therefore, been assuming greater and greater importance for the safety and comfort of the passengers and the efficiency and economy of air operations. Flying Clubs cannot, with their existing atmosphere, equipment, and development, give such training. It will have to be imparted by an institution specially established and equipped for that purpose.

179. **Capacity of industry to absorb new Pilots.**—Before we, however, deal with the institution which should give training to those who wish to obtain their Commercial Pilots' Licences, we shall refer to a vital aspect of this question which was brought to our notice during the course of the evidence which we took at the different centres in India. We were repeatedly told that apart from the acute problem of the absorption of the large number of the existing unemployed pilots holding 'B' licences, the demand for new entrants for a Pilot's career in the field of civil aviation by the Air Line Companies would necessarily under their financial strength and position, be strictly limited. We have, therefore, two problems before us. The first is to examine the desirability of limiting the number of persons who should be trained as Commercial Pilots in the future for a career in the Air Transport Industry. The second is how that number should be recruited and where they should be trained. We shall now deal with the first question.

180. **Few persons seek training for 'B' licences in pre-war period.**—According to the statement attached to this report and marked 'B', 984 'B' licences were issued between 1924 and 1951. Of these, only 446 'B' Licences were current at the end of 1951. As no facilities existed in India for the training of persons for enabling them to obtain 'B' licence, no such licence could be issued to Indians up to 1929. Twenty-nine such licences were, however, issued during that period to persons of other than Indian nationality. The flying clubs came into existence from 1928 onwards. They began to provide facilities for the training for 'B' Licence. During the period of sixteen years—from 1930 to 1945 only 119 Indians were trained by the Clubs for obtaining 'B' licences. During the same period 138 'B' Licences were issued in favour of non-Indians. It will, therefore, be obvious that till the end of the World War II, there was not any appreciable demand from Indians for going in for the training for 'B' licence. While 171 foreigners obtained their 'B' Licence during that period, only 119 Indians qualified for it during the same interval.

181. **Rush for 'B' Pilot training in post-war years.**—With the end of the World War II, conditions became very favourable for the establishment of an Air Transport Industry in India. Aircraft would be obtained at a reasonable price from the Disposals Department of the Government. Pilots released from the Indian Air Force also became available for employment in the Civil Aviation Industry. With India becoming independent, the Industry received a new

and further impetus. A number of airline companies were formed. They began to operate both scheduled and non-scheduled services. The demand for Pilots holding 'B' licence went on increasing year after year. The flying clubs were filled with trainees who wanted to be trained for obtaining the 'B' licence. It is remarkable that while only five trainees at the Clubs obtained their 'B' licences in 1946-47, that number went up to eighty-four in 1951-52. The demand was rapidly met by the training given both at the flying clubs as well as at the C.A.T.C. from 1949 onwards. During the period of three years—from 1949-50 to 1951-52—the total number of trainees who obtained their 'B' licence came to 259. 213 being trained at the clubs and 46 being trained at the C.A.T.C. Not only was the demand for 'B' Pilots fully met, but it created over-production. From the data that has been furnished to us, we find that more than 100 pilots holding 'B' licence are unable to find employment. Despite such large unemployment, according to the figures supplied to us by the Clubs, 164 pupils were undergoing training for 'A' Licence and 113 for 'B' Licence at all the Flying Clubs in India on the 30th September 1952. The situation which the above facts reveal naturally causes us serious concern. It lends inevitable support to the widely expressed demand that the number to be trained as Commercial Pilots for a career in the Air Transport Industry, should be restricted in the future. The country cannot close its institutions for the training of Commercial Pilots till all the unemployed Pilots holding 'B' Licence find employment in the field of civil aviation. That would be a suicidal step to take. Not only will it stop all progress in the field of training which the country badly needs, but it will also make it impossible for the Air Line Companies to secure the services of competent Pilot possessing such qualifications and experience as are needed for the handling of modern Air-craft. We, therefore, consider it our duty to examine the position in the light of these vital considerations.

सत्यमेव जयते

182. **Pilots required for replacement.**—The number of new pilots which the Air Transport Industry can annually be expected to absorb will depend upon the answer to two questions, namely, the number of annual wastage requiring the replacement of old pilots by new pilots, and the number of additional pilots that may be required to meet the possible expansion of the air transport industry in the near future. According to the particulars which have been supplied to us by the airline companies, the total number of pilots engaged by them on the 30th June 1952 was 330; 295 Indians and 35 foreigners. Of these 330, 180 acted as Commanders and 150 worked as Co-Pilots. It will be interesting to note that of these 330, 163 were trained at the Flying Clubs, 24 at the C.A.T.C., 84 in R.A.F. or I.A.F., and 24 abroad. In addition to these 330 pilots, the number of pilots who were giving instruction at the Flying Clubs or at the C.A.T.C. on the same date was 29; 28 Indians and one foreigner. We have, however, got no data in regard to the number of pilots who may have been engaged by the Maharajas, private firms and private individuals to fly their aircraft in this country. We are, however, given to understand that the number is not likely to exceed 20. It will, therefore, be noted that the total number of pilots working with the airlines, at the Flying Clubs, at the C.A.T.C. and with private individuals and firms comes to 380. What will be the number

of new pilots which will be needed annually to replace those who may go out of the field owing to a number of reasons such as medical unfitness, retirement, etc.? There is no experience to guide us in this matter, as the air transport industry in this country is in its stage of infancy. It is, therefore, not easy to determine the percentage of wastage in this industry in India. From the information which was supplied to the Chairman by the Ministry of Civil Aviation in the U.K. and the Director General of Civil Aviation in the Netherlands as a result of their experience we have taken 7 to 8 per cent as the percentage of normal wastage in this line in this country. Calculating on this basis, we find that we shall need 27 to 30 new pilots to replace the wastage in a force consisting of 380 pilots. This, however, does not take into consideration the number of additional pilots that may be required to meet the possible expansion of the air transport industry.

183. **Possibility of expansion in Air Transport Industry.**—As the problems connected with the policy regarding the expansion of the air transport industry in this country do not form part of our terms of reference, we find it difficult to deal with the problem of the additional pilots that the industry is likely to need in the future. We, however, consider it our duty to take note of those factors which are likely to affect the total number of pilots which the industry would require. The obvious facts that the airline companies do not possess the financial strength necessary for immediate expansion and that the existing circumstances affect adversely their working cannot, however, be ignored. They are bound to affect the total number of pilots which the industry will continue to employ. We would like to mention here one very vital consideration which imposes a serious burden on the profitable working of the industry. Certain standards of working costs were laid down by the Air Transport Inquiry Committee when that Committee made its Report in 1950. These costs were based on the prevailing rate of aviation spirit which was supplied to the aircraft at that time. For instance, the rate of aviation spirit supplied at Bombay in August 1950 was Rs. 2-8-6 per gallon. This rate went on increasing and reached the figure of Rs. 3-4-6 in October last. There was thus an increase of 12 annas per gallon in this most important item of expenditure. Ignoring for the time being the higher increase in the rate at other centres than Bombay, it is not difficult to calculate that a heavy financial burden this increase has imposed on the working of the air transport industry. From the data given to us, we find that over 11 million gallons of petrol were consumed in 1951 by Indian scheduled and non-scheduled operators, excluding the quantity consumed by the Air India International. In view of the rise in the price of aviation spirit as mentioned above, this one single factor —not to take into consideration the rise in the cost of spares, etc.— would add over Rs. 80 lakhs to the annual cost that would now be incurred by the airline companies in running their services. It will not be, therefore, unfair to conclude that in view of the above disabilities under which the Airlines have to work in this country, at present, there does not seem to be any reasonable possibility for an appreciable expansion of the industry in the near future.

184. **Number of Pilots under the new merger policy.**—It is now officially reported that the Government have decided to merge all

the airline companies, including the Air India International, in one single Corporation. They have, however, not made any announcement or given any indication as to the nature and extent of any possible expansion of the industry either within or without the country in the near future. The Committee is, therefore, at a great disadvantage in determining the number of additional pilots which the air transport industry may need as a result of this new civil aviation policy of the Government of India. It is recognised on all hands that the total number of pilots which the industry may require will depend upon the type, the size and the speed of the machine employed, the frequency of the services under which they may be worked on different routes, and the total number of mileage for which the aircraft would have to fly annually. In the absence of the knowledge of the policy which the Government are going to adopt, it is difficult to make our calculations on the basis of the above considerations. One view is that, if the existing Vikings are used to a greater extent and if 10 new aircraft of the Viscount class are introduced and if the services are re-organised by such new and faster machines and if a more rational route pattern is evolved, the aircraft industry may require only about 220 pilots in place of 330 pilots who are manning the industry at present. Another view is that, with the formation of the Corporation and the possibility of the development of a new International Service and the organisation of new Feeder Services and the expansion of freight traffic, there is no likelihood of any diminution in the existing number of Pilots, but more Pilots may have to be engaged in the future. The Committee would not like to express any opinion on such a hypothetical possibility. They have, therefore, taken into consideration the normal annual wastage in the existing force of Pilots and have, in view of what is stated above, come to the conclusion that the industry may be able to give employment to a maximum number of about 27 to 30 new Pilots per year.

185. **Limited Number of Pilots to be trained.**—From what we have stated in the above paragraph, the conclusion is inevitable that it is desirable that the number of persons who should be trained as commercial pilots per year in the future should be limited. After carefully considering the different aspects of the question, we have come to the conclusion that the number should be 30. That, however, does not solve the problem of unemployment. We propose to deal with this question in a separate Chapter. For all practical purposes we may, therefore, proceed on the basis that the Air Transport Industry will not be able to absorb more than a maximum of 30 new pilots per year in the next few years. How should these pilots be recruited and what institution should impart them training are questions of considerable importance. We shall first deal with the question of recruitment.

186. **How others recruit their commercial pilots.**—It is well-known that countries like the United Kingdom, United States of America, France and Switzerland which have got a highly developed civil aviation industry, have been recruiting a large number of commercial pilots whom they require, from the expersonnel of their Air Force. The majority of pilots engaged by the British Air Lines before the 1939-45 War were those released from the R.A.F. on completion of Short Service engagements. They were also recruited

from civilians pilots who had paid for their own training at commercial schools.. All the pilots required by the Swissair are, however, fully recruited from the Swiss Air Force. Netherlands is, however, the only country of note which has recently changed this system of recruitment. It has now ceased to recruit commercial pilots from ex-personnel of the Air Force. That country has established a Civil Flying School specially equipped for the training of commercial pilots. All the pilots required by the Air Transport Industry of that country are now supplied by the persons trained at this Government School.

187. **Recruitment of commercial pilots from the I.A.F. viewed favourably.**—The question of recruiting commercial pilots to meet the needs of the Indian Air Transport Industry from the ex-personnel of the Indian Air Force was raised during the course of the evidence which witnesses gave before the Committee. Such recruitment was viewed by several of them with favour. Air Vice Marshal Mukherjee told the Committee that he would personally support such a policy of recruitment. With a view to get the position further clarified, the Chairman carried on a D.O. correspondence with the Air Vice Marshal. The Chairman in his letter dealt with the recent position as it had developed in this connection in the United Kingdom.

188. **Policy and method of recruitment of ex-Air Force Pilots in the U.K.**—Reference was made in that letter to the appointment, in 1947, of a Committee on Recruitment, Training and Licensing in the United Kingdom. The information given to the Chairman by the Deputy Director of Training and Licensing in the United Kingdom, in regard to the stage which the Air Ministry in the U.K. had reached in its appreciation of the problem of recruiting pilots from the ex-personnel of the Air Force, at the time of the appointment of that Committee, was conveyed to the Air Vice Marshal. It was as follows:—

> "The Air Ministry were willing to co-operate activity in providing aircrew for civil aviation. They agreed that this could best be done by pre-selecting aircrew who were on short-term engagements and would be of a suitable age on release for subsequent employment in civil aviation, and by arranging for them to gain, through the medium of Transport Command while still in the Service, experience of Transport Flying. They accept that aircrew during their tour in Transport Command should be given all facilities to qualify for their civil licences."
>
> "The output of aircrew from the R.A.F. would more than satisfy the demands of civil aviation, including charter operators, which were likely to arise, on the then current estimates."

The letter also brought to the notice of the Air Vice Marshal the following recommendations made by the Willcock Committee in their Report presented to the Parliament in July 1949 and accepted by the Government of the U.K.

"(i) The fullest use should be made of ex-R.A.F. pilots for employment in civil aviation.

(ii) R.A.F. aircrew intending to enter civil aviation should be pre-selected and suitable applicants should be given an assurance of at least trial employment with civil firms, provided they obtain the requisite licences beforehand.

(iii) A Liaison Committee should be appointed to pre-select aircrew for civil aviation employment.

(iv) Pre-selected aircrew should be granted facilities for obtaining civil aviation licences before leaving the Services, and should, when practicable, complete their service in posts that will help to fit them for civil aviation.”

As regards the Liaison Committee, the following recommendations were made:—

“We recommended that a Standing Committee be appointed to arrange for the recruitment and training for civil aviation of serving personnel who wish to enter civil aviation when they leave the R.A.F. Initially, the Committee should deal only with aircrew, but from time to time it should consider the advisability of extending the scheme to other personnel in the R.A.F. who might be suitable for employment in civil aviation. The Committee should be composed of representatives of the Ministry of Civil Aviation, the Air Ministry, the Airline Corporations, the charter companies and other aviation employers when concerned. ‘Its functions should be:—

(i) To ascertain what proportion of civil needs can be met by personnel expected to leave the R.A.F. during each period under review, and to estimate the number of posts that can be offered to suitable R.A.F. personnel.

(ii) To arrange, in collaboration with the Air Ministry and the employers, for the interview and selection of suitable R.A.F. candidates for civil employment. This interview should preferably take place two years before they are due to leave the R.A.F. for the reasons given in sub-paras. (iii) and (iv) below.

(iii) To reach general agreement with the Air Ministry for selected personnel to be granted facilities for obtaining civil aviation licences before leaving the Service.

(iv) To negotiate with the Air Ministry for selected candidates to complete their R.A.F. Service, where practicable, in a Command or post in which the experience will help to fit them for civil aviation.

(v) To review the success of the pre-selection scheme from time to time and, for this purpose, to call for reports from employers on the progress or value of ex-service personnel and of pre-selection training’ ”

The letter further added that:—

“The Liaison Committee which was called the Standing Committee on Recruitment for Civil Aviation from the Services was appointed by the Minister of Civil Aviation in September 1949, and it is still in being. The Chairman and Secretariat of the Committee are provided by the Ministry of Civil Aviation. Representatives of the Air Force, Admiralty, independent operators and British Airways Corporations are members of the Committee. The Committee's functions were discussed with interested parties and are covered by the agreed terms of reference. They are as under:—

(a) To determine the procedure to be adopted for the pre-selection of service flying personnel desiring to enter civil aviation;

(b) To review periodically the arrangements for recruitment and pre-release training of personnel who wish to enter civil aviation when they leave the Services and to make recommendations for amendment in the light of changing circumstances; and

(c) To revise periodically the estimates of the number of personnel required for civil aviation."

189. **Air Vice Marshal welcomes recruitment from Air Force.**—The Chairman enquired of the Air Vice Marshal whether he would personally welcome the adoption of a policy in India whereby the pilots required to meet the future needs of the airline companies could be recruited from the ex-Air Force personnel of the Indian Air Force, and whether he would personally consider the adoption of such a policy as desirable and practicable. The Air Vice Marshal was also requested to give his personal views as to whether it was possible and practicable to evolve a system of pre-selection for that purpose more or less on the lines adopted in the United Kingdom, which may become beneficial both to the air transport industry as well as the Indian Air Force. We are glad to state that the replies given by Air Vice Marshal Mukerjee to all the above questions were in the affirmative and that we were authorised to record them as such in our Report as his personal views.

190. The Air Vice Marshal pointed out in his reply that there was no justification for holding the view "that Indian Air Force will have to give Short Service Commission to a larger number of officers than the number required by them for meeting the requirements of commercial pilots of the airline companies." On the contrary, he was definitely of the opinion that it was no use "having pilots in the Reserve unless he flies, and if our pilots who are going out of service and join business organisations and do no flying and are called upon after three years, their chances of being useful pilots are nil." He therefore, agreed with the view that "if a system could be evolved whereby the needs of the airline companies for commercial pilots could be met from the ex-Short Service Commission Officers of the Indian Air Force, it would be in the interest of the Air Force as well as in the interests of the air transport industry."

191. **Policy of recruitment from Air Force beneficial in the interests of all.**—It will be noted from what we have stated above that the present head of the Air Headquarters would personally favour the adoption of a system of recruiting commercial pilots from the ex-personnel of the Indian Air Force and that he would be personally

agreeable to the introduction of a pre-selection system for that purpose, more or less on the lines adopted in that connection in the United Kingdom. The nature of training which the pilot gets in the Training School of the Indian Air Force and the flying experience which he receives during the period of his Short Service Commission in that force equips him very largely with the qualifications which the pilots in the future would need for carrying out the duties and responsibilities of the civil air transport industry. Some arrangements may have to be made for giving him the necessary insight and training for enabling him to carry out satisfactorily the special work and duties connected with operations in the field of civil aviation. Such training can be given after he leaves the Air Force and before he starts his work of flying aircraft on regular services. The adoption, therefore, of a policy of recruiting pilots for the air transport industry from the ex-personnel of the Indian Air Force under a pre-selection system will, no doubt, be conducive to the benefit of all concerned—the Indian Air Force, the civil air transport industry, and the pilots.

192. **Post-war Plan has considered this recruitment policy as sound and practical.**—It may be interesting to note in this connection that the policy laid down for post-war planning of civil aviation in 1945 recognised the value and importance of such a system of recruitment. It stated that:—

> "The training policy and the estimates may be very greatly modified by the development of Air Force policy which cannot yet be foreseen. Should a "Short Service" policy be adopted in the Indian Air Force after the war, there will, after a period of years, be a constant flow of trained pilots from the Air Force seeking employment in Civil Aviation. It should be the policy of Government and the country to give these men priority in employment, and their employment may well exclude other sources of recruitment. Short Service pilots from the Air Force may be expected to have accumulated about 1,000 hours flying experience, and while they will need such of the ground training in the school, their flying training will be restricted to conversion courses and special flying exercises, amounting to approximately one quarter of the flying training outlined below. If such a state of affairs were established, the cost of the Flying School would be considerably reduced both in regard to capital equipment and operating costs and in staff".

193. We may further add that the above-mentioned system of recruitment was considered as a sound policy of training by the Director General of Civil Aviation. In the letter which he wrote in January 1948, in support of the proposal for the starting of a Flying School at the Civil Aviation Training Centre, he stressed the fact that such a Flying School had become necessary owing to the acute shortage of 'a regular outflow of trained personnel from Air Force Service seeking employment in civil aviation, as is the case in more advanced countries." It is, therefore, clear that the policy of recruiting commercial pilots for the air transport industry from the ex-personnel of the Indian Air Force is considered as a sound and practical one in all responsible quarters.

194. **Need for a special institution for the training of commercial pilots.**—As we have stated in a previous paragraph, the maximum number of fresh pilots which can be absorbed in the present condition of the Indian Air Transport Industry cannot be more than 30. We do not know whether it will be a practical proposition with the Indian Air Force, even with the expected revival of the system of Short Service Commission, to release that number of pilots, year after year, for absorption in the field of civil aviation. We have also to consider whether the flying school at the C.A.T.C. should be continued in that case, or should be closed. We were told that there were other institutions such as the Aerodrome Officers' School, the Radio Communication School and the Ground Engineering School, which derived considerable benefit from the Flying School which existed in their proximity. Apart, however, from these considerations, there was an issue of fundamental importance which we had to bear in mind. The Civil Air Transport Industry should not completely depend for the pilots it needs on the exigencies of the development of the Indian Air Force. In view of the rapidly growing developments in the modern aircraft and engines, instruments and navigational aids, it is essential that we should have a fully equipped modern institution where highest training on modern-lines could be given to Indians to become competent and efficient pilots in the air transport industry of the country. We, therefore, thought that it should be both a prudent and a practical policy to adopt whereby we may be able to secure the best for our needs by a judicious mixture of the pilots possessing the varied experience of the Air Force and the pilots thoroughly trained at a Flying School imparting instruction according to modern standards and under modern lines. The Committee, after careful consideration of all the issues involved, came to the conclusion that half of the requirements of the pilots for the air transport industry should be secured from the ex-personnel of the Air Force, and half should be obtained from those who should undergo a complete training at a Flying School to be specially run for that purpose. We, therefore, recommend that the maximum number of pilots who should be trained as commercial pilots per year for absorption in the air transport industry should not be more than 30. We further recommend that half the number of these pilots should be recruited from the ex-personnel of the Indian Air Force under a pre-selection system like the one which is in force in the United Kingdom, and the other half should be trained at the Flying School to be specially run for that purpose.

195. **No restriction on clubs training commercial Pilots at their own costs.**—It is brought to our notice that a large number of persons holding commercial pilot's licence work as pilots of private planes and planes owned by commercial concerns in the United States. Our proposal to restrict the number of pilots to be trained for the air transport industry should not prevent those who are anxious to obtain their commercial pilots licence for employment as pilots of private aircraft. In view, however, of the limited resources of the State, we cannot recommend the subsidising of the training at the Flying Clubs for the commercial pilot's licence for flying the private aircraft. We, therefore, recommend that no restriction should be put on those who wish to undergo training for obtaining commercial pilot's licence at their own cost and we recommend that they may be given such training at the Flying Clubs.

196. Before we set forth our views in regard to the institution that should impart training to the above limited number going in for the commercial pilot's licence and consider the future role which the Flying School at the C.A.T.C. should play in that connection, we would like to deal with another important question, namely the cost of training and the responsibility of the State.

STATEMENT "A"

Statement showing number of 'A' licences issued to Indians and other Nationalities, their progressive totals and grand totals, the number of Indians and other nationalities trained by Flying Clubs, and the number of 'A' licences, current on 31st December of each year.

Year	Indians			Other Nationalities			Total for the year	Progressive total	Licences current on 31st December			Remarks
	Flying Clubs	Total	Progressive Total	Flying Clubs	Total	Progressive total			Indians	Others	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13
1928												
1929		17			48		65				65	
1930	44	44	61		52	100	96	161			125	
1931	59	60	121		62	162	122	283			197	
1932	41	45	166		59	221	104	387			196	
1933	39	44	210		52	273	96	483			216	
1934	42	49	259		52	325	101	584			231	
1935	62	62	321	15	42	367	104	688			234	
1936	64	64	385	19	33	400	97	785			227	
1937	68	68	453	14	29	429	97	882			236	
1938	53	53	506	16	26	455	79	961			246	
1939		57	563		39	494	96	1,057			252	
1940		104	667		73	567	177	1,234			295	
1941		128	795		60	627	188	1,422			261	
1942		15	810		45	672	60	1,482			121	
1943		2	812		1	673	3	1,485			48	
1944		1	813		2	675	3	1,488			48	

1	2	3	4	5	6	7	8	9	10	11	12	13
1945			813		1	676	1	1,489			51	
1946	42	48	861	29	55	731	103	1,592			196	
1947	118	141	1,002	56	71	802	212	1,804	209	77	286	
1948	141	178	1,180	12	26	828	204	2,008	296	75	371	
1949	196	203	1,383	16	19	847	222	2,230	91	55	146	
1950	220	223	1,606	3	5	852	228	2,458	512	28	540	
1951	200	204	1,810	2	3	855	207	2,665	542	19	661	
1952 upto 20th Aug.	127	124	1,934	3	7	862	131	2,796				

STATEMENT "B"

Statement showing number of Pilots 'B' Licences issued to Indian and other Nationalities, their progressive totals and grand totals and the number of 'B' licences current on 31st December of each year

Year	Indian		Other Nationalities		Total issued in the year	Progressive grand total	Number current on 31st December	Remarks
	Number Issued	Progressive total	Number issued	Progressive total				
1	2	3	4	5	6	7	8	9
1924			1		1			
1925								
1926								
1927			1	2	1	2		
1928			8	10	8	10		
1929			19	29	19	29		
1930	2		27	56	29	58	27	
1931	3	5	15	71	18	76	24	
1932	8	13	4	75	12	88	27	
1933	4	17	14	89	18	106	43	
1934	7	24	5	94	12	118	45	

1	2	3	4	5	6	7	8	9
1935	9	33	11	105	20	138	52	
1936	13	46	25	130	38	176	62	
1937	15	61	9	139	24	200	69	
1938	21	82	12	151	33	233	...	
1939	11	93	11	162	22	255	85	
1940	11	104	3	165	14	269	76	
1941	9	113	4	169	13	282	74	
1942	...	113	...	169	...	282	57	
1943	...	113	...	169	...	282	47	
1944	2	115		169	2	284	51	
1945	4	119	2	171	6	290	62	
1946	56	175	66	237	122	412	157	
1947	60	235	95	332	155	567	251	
1948	46	281	47	379	93	660	248	
1949	83	364	12	391	95	755	356	
1950	113	477	11	402	124	879	490	
1951	100	577	5	407	105	984	446	
1952	81	658	...	407	81	1,065		

सत्यमेव जयते

CHAPTER VII

COST OF TRAINING AND RESPONSIBILITY OF THE STATE

197. We have been asked by our terms of reference to examine the "scheme for financial assistance for training of commercial pilots—incidence of costs on pilots, airlines and Government" and "scheme for financial assistance for training private pilots, including concessions in customs duty on light aircraft, aircraft parts, light aircraft radio, landing and housing fees and duty on aviation petrol." Let us, therefore, first examine the existing position in regard to the cost which a trainee incurs for acquiring a private pilot's licence and a commercial pilot's licence and the financial help which the State gives in connection with the training which he undergoes for that purpose.

198. **What a trainee pays for his private pilot's licence.**—A person under 28 years of age, who wants to obtain his private pilot's licence, that is 'A' licence under the existing Rules, has generally to fly on an average for 20 hours dual before he is found good enough to go on his solo flight. He has to acquire 5 hours solo flying experience.

This may include the time spent for the flying test which he has to undergo for his 'A' licence. Generally, he will be flying some supplementary hours even during the stage of his solo flight. It may, therefore, be fair to estimate that before he will obtain his 'A' licence, he will be normally doing 30 hours of flying dual and solo, including the hours necessary for the flying tests. A person undergoing training at the flying clubs pays Rs. 25 for every hour flown by him. If he flies on lighter machines like the Piper Cub and Aeronca, he will be paying only Rs. 20 per hour. As out of the 115 serviceable aircraft on which the pupils fly at the flying clubs, only 17 serviceable machines are of lighter weight, and that only in 3 out of 10 clubs, it is fair to take the average amount which the pupil will have to pay for flying per hour at Rs. 25. He will, therefore, have to pay Rs. 750 to the club for the 30 hours which he will normally fly before obtaining his 'A' licence. The person undergoing training for 'A' licence is required to become a member of the club and has to pay a monthly subscription of Rs. 5, in addition to the admission fee of Rs. 30. These fees and subscriptions vary from Club to Club. We will not be, however, wrong if we were to estimate this expenditure at Rs. 100 before a pupil obtains his 'A' licence. It will, therefore, be noted that the average cost which a person under 28 years of age will incur for obtaining his 'A' licence will come to about Rs. 850. If he happens, however, to be over 28 years of age, he will have to pay Rs. 45 for every hour of flying. His total cost for obtaining the private pilot's licence will therefore come to Rs. 1,450. If he happens to be a non-Indian, he will have to pay Rs. 75 for every hour he flies. A non-Indian will have to spend about Rs. 2,350 before obtaining his 'A' licence. It may be added that the above cost does not include any special expenditure that a pupil may have to undergo during his period of stay on account of boarding and lodging, particularly when he comes from another State or from outside the city in which the flying club is situated. From the data which has been supplied to us by the clubs, we find that 50 to 55% of the trainees come from outside the city in which the clubs are located. We are told that a normal pupil will take about 4 to 6 months for acquiring his 'A' licence. If he comes from outside the city in which the club is located, he may have to pay about Rs. 500 for the extra expenditure that he may have to incur in the way of his boarding and lodging and other travelling charges. The amounts which we have indicated above will have, therefore, to be increased by Rs. 500 in the case of such pupils.

199. **What a pilot will have to pay for obtaining his 'B' licence.**—Before a person can obtain 'B' licence, he will have to fly, on an average, 50 hours dual, 10 hours at night, and a minimum of 200 solo hours. If he is under 28 years of age, he will have to pay Rs. 25 for every hour flown during the day. For the hours that he flies at night, he will have to pay Rs. 45 for every hour flown. Including his monthly subscription to the Club and his admission fee, etc., the total amount which he will have to spend for obtaining his 'B' licence will come to Rs. 6,950 or, say, Rs. 7,000 in round figures. If he, however, happens to come from outside the city in which the Club is located—and as we have stated above, nearly 50% of the pupils come from outside the city—he will incur a further expenditure of about Rs. 3,000 for his boarding, lodging and travelling expenses. As he normally takes about 2 years to get his 'B' licence, we have included

this special expenditure for a period of 2 years. It will, therefore, be noted that at any rate 50% of such trainees will have to spend about Rs. 10,000 for obtaining their 'B' licences. If the trainee is, however, above 28 years of age, he will have to spend a further sum of Rs. 5,000 to obtain his licence. We are told that persons above 28 years of age have not possibly offered themselves for this training as the rate of fees is obviously prohibitive.

200. Normally speaking, a person holding a 'B' licence obtained his conversion training with an airline company who would engage his services. This training would not, therefore, cost him anything. On the contrary, in most cases, the airline companies would pay him at least a subsistence salary for the period of his conversion training. The position has now changed in view of the directive issued by the D.G.C.A. (*vide* para. 107). This will impose on him a further burden of about Rs. 5,500 inclusive of the fees of Rs. 4,700 which he will have to pay to the C.A.T.C. for his conversion training. He has to find this further sum for completing his training, so that he can fly as a co-pilot. The net result, therefore, is that the minimum sum which a person will have to spend for obtaining his 'B' licence with Dakota endorsement will come to Rs. 12,500. It will go up to Rs. 15,500 in the case of one who comes to the Club from outside the city in which it is located.

201. **What a pupil pays at the C.A.T.C. up-to Dakota conversion course.**—A pupil undergoing training from ab-initio course up to Dakota conversion will have to pay the sum of Rs. 4,500 only for the training he receives. As he will have to stay at the C.A.T.C. all throughout his period of training—for about 12 months—it is estimated that he will be spending about Rs. 1,500 for his boarding, lodging, travelling and other incidental expenses. It will, therefore, cost him a total sum of about Rs. 6,000 for the training which he will receive at that Centre. This sum will enable him to get his 'B' licence with the Dakota type endorsed on the same. While a pupil at the flying club will be given flying experience only on single engined aircraft, a pupil at the C.A.T.C. will fly on twin-engined aircraft also. It is, therefore, important to note that while it will cost about Rs. 6,000 to a pupil undergoing training, up to Dakota conversion course at the C.A.T.C., even with the benefit of receiving flying experience on twin-engined aircraft, for his 'B' licence, it will cost Rs. 12,500 to Rs. 15,500 for the same purpose to a pupil trained at the flying club, and with the flying experience on a single-engined aircraft only. It will, therefore, be obvious that subsidy on a far more generous scale is given to the flying school at the C.A.T.C. than the scale on which it is given to the flying clubs. It is this policy of discrimination which makes it possible for the pupil at the C.A.T.C. to complete his training up to Dakota conversion within an amount more than 50% less than that which a pupil at the flying club has to spend for that purpose. This circumstance naturally affects the incidence of cost which the pilot has to bear for his own training.

202. **State assistance is essential for civil flying.**—Spreading of air-mindedness, developing the love for sport flying and preparing competent pilots for the air transport industry are considered beneficial for the economy, progress and defence of a modern State. The cost of owning, running and maintaining an aircraft is, however,

prohibitive. An ordinary citizen cannot, therefore, afford to pay the full cost of flying which he wishes to learn, whether it is for sport or for a career. Financial help in one form or the other has, therefore, been given by some of the countries for enabling their citizens to learn flying. Prior to World War II, the Federal Government of the United States of America trained thousands of pilots at the expense of the State. Great Britain gave substantial financial assistance to flying clubs up to the end of World War II. Even today, large indirect help is given to these clubs by extending to them the patronage of giving flying training to 500 cadets of the Air Training Corps, and entrusting them with the work of teaching flying to the National Service men and the members of some of the Reserves of the Air Force. Canada, Australia, and Egypt have been subsidising their flying clubs even today. The Egyptian Government is considering a scheme for fixing the cost of training to be paid by a pupil at not more than £1 per hour. The Netherlands Government has been running a State Flying School for the training of commercial pilots. Out of a total cost of training a pupil at the School, amounting to £10,000, the pupil has to pay only £360, the balance of £9,640 per pupil is borne by the State. The Swiss Government gives a subsidy of 500,000 Swiss francs to the Swiss Air School for the training which it imparts to the pilots drawn from the Air Force. The Government in Great Britain does not grant any help for the training of commercial pilots. It has, however, to be realised that commercial pilots in Great Britain are mainly recruited from the *ex*-personnel of the Air Force. These pilots receive their training in the Air Force either as Short Service Commission officers or as National Service men. It will, therefore, be realised that it is the State which bears the cost of their training. Their training at the cost of the State in the Air Force enables them to obtain the Commercial Pilot's licence while they are with the Air Force. In any case, the amount, if any, that such pilots may have to spend will be comparatively very little for obtaining their commercial pilot's licence. In view of what we have stated above, it will be realised that the State has been subsidising flying, in one form or another, even in countries which have a highly developed system of civil flying. India cannot, therefore, afford to forget the lesson which the recognition by some of the modern States of their responsibility to subsidise flying teaches to all of us.

203. **Subsidy given by the Central Government and the States for promoting civil flying.**—We have already referred in Chapter II to subsidies which have been given by the Central Government and the States to enable the flying clubs to promote their flying activities, and we have already recommended that the Central Government and the State should continue, in the future, their policy of subsidising the flying clubs in India. We would like, however, to give here some broad idea in regard to the part which these subsidies play in meeting the total cost which the clubs incur for their flying activities. As the clubs have to render certain services to their States from whom they receive financial assistance and as it is not possible, as already mentioned in a previous Chapter, to ascertain the actual cost of these services, we are not in a position to determine the actual amount which becomes available to the clubs, out of the subsidies which they receive from the States, for financing their flying activities. The following figures, however, will give some idea of the incidence of

the cost which falls on the trainees, the Central Government and the States in meeting the expenditure incurred by the clubs.

	1949-50 Rs.	1950-51 Rs.	1951-52 Rs.
Total subsidies from the Central Govt.	12,19,701	11,74,504	11,13,567
Total subsidies from the State Govts.	7,88,892	8,96,383	8,84,812
Total help from Central & State Govt.	20,08,593	20,70,887	19,98,379
Total amount received from flying fees	7,89,855	7,78,771	7,51,697
Total amount of fees from members	1,18,638	1,16,935	1,07,864
Total income from other sources	2,21,272	2,19,713	2,16,499
Total income of clubs.	11,29,765	11,15,419	10,76,060
Total income of the clubs from all sources	31,38,358	31,86,306	30,74,439
Total expenditure of the clubs.	31,17,005	34,46,265	32,03,786

It will be observed from the figures given above that against a total expenditure of all the clubs in the three years ending the 31st March, 1952, amounting to Rs. 97,67,056, the amount received by them by way of subsidies, flying fees and other receipts came to Rs. 93,99,103. There was, therefore, a deficit of Rs. 3,67,953, during these three years. The sources of income may be summarised as under:—

	Rs.			
Subsidy from the Central Govt.	35,07,772	—	37½%	of the total income.
Subsidy from the State Govts.	25,70,087	—	27½%	—do—
Fees paid by the trainees	23,20,323	—	24½%	—do—
Membership fees & other receipts	10,00,921	—	10½%	—do—

The figures of income and expenditure of all the flying clubs, as given above, for the latest three years of their working reveal the important fact that while the trainees have borne 24½%, or say ¼, of the entire cost of their training, 65%, or say, 2/3, of the cost have been contributed by the Centre and the States, while 10½%, or only 1/10, have been met from the fees of the members and other receipts of the clubs. It is, therefore, obvious that without the substantial assistance from the State, clubs would not have been able to carry on their flying activities and thus play an important part in meeting the demands of the air transport industry at a crucial and important development in its history.

204. **Conversion and Pilot-in-Command Certificate training.**—Airline companies have provided facilities to pilots holding 'B' licences, trained on single-engined aircraft, for undergoing conversion training on multi-engined aircraft operated by them. Without such facilities the pilots would not have been able to start their professional career in the air transport industry of India. The airlines continued to provide these training facilities in the difficult and formative period of the industry—from 1946 to 1952—when they had to discontinue them under the orders of the D.G.C.A. The services which they thereby rendered to this country will, we have no doubt, be appreciated in all responsible quarters. Training has also been given by the airlines to

their pilots to enable them to obtain their Pilot-in-Command Certificates. As we have been asked to study the incidence of cost of training which falls on the airlines, we requested the airline companies to furnish us with the data of the cost incurred by them in providing facilities and opportunities to pilots for conversion training and for obtaining pilot-in-command certificates. Although all the information that we asked for has not been supplied to us, such information as has been received is both informing and instructive. Some of the airline companies have not maintained separate accounts for each type of training. Moreover, the costs of training as given by different airlines, for the same type of training also vary. For instance, while the cost of conversion training on a D.C.3 (Dakota) given by Airways (India) Ltd., for 1950 was Rs. 1,980, the cost of the same training given by the Deccan Airways in 1951, was Rs. 1,028. Further, the average cost incurred by the Air India for the conversion training given on Dakota and Viking came to Rs. 1,905 in the year 1950. Four hundred and thirty two pilots were given conversion training by the different airlines between 1946 and 1952, of which 310 were trained on D.C.3 and 45 on Viking. It will thus be noted that almost all the pilots at present engaged by our airlines have received their Dakota training from the companies whom they have been serving. All the airlines have, however, not given details of the pilot-in-command certificate training given by them to their pilots. From such information as has been supplied to us we find that 5 companies have provided their pilots with facilities for obtaining their pilot-in-command certificate at a cost of Rs. 4,50,000. Facilities which have been provided for the training referred to above by the airlines have cost them nearly Rs. 17,40,000, of which a little over Rs. 9,25,000 were spent by them for the conversion training given to their pilots. It is difficult to determine the incidence of cost of such training because the entire cost is borne by the airline companies. In view of the financial difficulties through which the airline companies have been passing, and having regard to the growing weakness of their financial strength, we are of the opinion that the airline companies should not be saddled with the cost of such training at least for some years to come. The position may be reviewed after some years in the light of the then existing circumstances. We are aware of the fact that the Government is forming a single Corporation merging all the present airline companies. Whether the air transport industry is carried on by the existing airline companies or whether it is run by a single Corporation, we recommend, in view of the circumstances mentioned above, that the cost of conversion training and the pilot-in-command certificate training should be borne by the State. The matter can only be re-examined when the air transport industry has been able to build up such a financial strength as can ensure its stability and expansion in the future.

205. **Conversion training in the future.**—So far as the Dakota training is concerned, it will form part of the future training at the C.A.T.C., to which reference will be made in a subsequent Chapter. Whether it would be practicable to give conversion training on other aircraft at the C.A.T.C., or whether it should be continued to be given by the airline companies as at present, or by the new Corporation, that is going to be formed, it will be a matter which could be decided on practical considerations. It will not be possible for the C.A.T.C. to give such training at present as it will necessitate the

maintenance of different aircraft, which would impose an unjustifiable burden on the Centre at present. We, therefore, recommend that conversion training on aircraft other than Dakota should be continued to be given in the future by the airline companies, or by the merged Corporation as the case may be as in the past, but the cost incurred for such training should be met by a subsidy from the Central Government. We consider this essential to enable the air transport industry to maintain and preserve its economic health.

206. **Fees to be paid for sport flying.**—We have already pointed out in the above paragraphs that the minimum cost which a pupil will incur to obtain at present his private pilot's licence will come to about Rs. 850. Under the new rules, which we have proposed, it will not be less than Rs. 1,350. This will be in the case of a pupil who will be under 28 years of age. If he is above that age, it costs him, at present, as mentioned above, about Rs. 1,450. In the future (on the supposition that our proposed rules will be accepted) he will have to spend not less than Rs. 2,350 for obtaining his private pilot's licence. This is entirely due to the higher qualifications which we have recommended for obtaining a Private Pilot's licence in the future than those which are in force at present. The Government are, however, anxious to ensure the spreading of air-mindedness and to foster the development of sport flying in the country. During the course of our enquiry we have found the existence of a widespread opinion that the present high fees militates against the demand and development of private flying. As a matter of fact, a suggestion has already been made by the Madras Flying Club, with the support of the Madras Government, that the existing fees should be reduced from Rs. 25 to Rs. 10 at least in the case of students of colleges and technical institutions. The Madras Government offered to contribute the sum of Rs. 5 as a further flying subvention to make up the difference of Rs. 15, the remaining sum of Rs. 10 to be contributed by the Central Government. In the memorandum which the Madras Government has submitted to the Committee, they have expressed their opinion that the fees which the pupil for private flying should pay should be reduced to Rs. 7-8-0 per hour. From the data that we have gathered and from the views that we have heard, we do not think that there will be any demand for sport flying in the future, as very few indeed would be prepared to spend a sum of Rs. 2,350 for that purpose. Moreover, we have to remember that cadets of the Air Wing of the National Cadet Corps are trained free of cost at the expense of the State. If the cost of training is to be kept within a reasonable limit and if encouragement is to be given to a large number of people to go in for Sport Flying, we are of the opinion that the fees that should be charged to the private fliers should be kept at a reasonably low level per hour in the future. We, therefore, recommend that, with a view to develop Sport Flying and to spread air-mindedness in the country, a person under 28 years of age, irrespective of his nationality, undergoing flying training at the Flying Clubs, should not be charged more than Rs. 10 per hour for every hour flown to enable him to obtain his private pilot's licence and for 5 hours flying experience which he will require to keep his licence current. If a person is over 28 years of age, whether he is an Indian or non-Indian, he should not be charged more than Rs. 15 per hour for the same purpose. In addition to the hours of flying required for obtaining private pilot's licence and for keeping

his licence current, a person, irrespective of his age, going in for Sport Flying at the Clubs, should be charged at Rs. 25 per hour. This concessional fee will not entitle him to fly as a Sport Flier at the Club for more than 20 hours during a year. This concessional flying for 20 hours will be subject to the condition that the total hours of subsidised flying of all sorts shall not exceed at a Club 4,500 hours per year. We shall deal with the financial aspects of this proposal in the Chapter where we shall examine the future role which the Flying Clubs should play in the field of Civil Aviation.

207. **Fees to be paid for the Commercial Pilot's licence with the endorsement of Dakota in the licence.**—We have mentioned above that it will cost a person at present for obtaining his 'B' licence with Dakota conversion Rs. 12,500 to Rs. 15,500 if he is trained at the club. If he is, however, trained at the C.A.T.C., it will cost him about Rs. 6,000. Under the new rules, that we have proposed, he will have to fly a minimum 100 hours solo and about 50 hours dual at an approved school for obtaining his commercial pilot's licence. We are, however, laying down a higher standard of training to be given at the C.A.T.C. for this purpose in the future. Whatever the number of hours that he may have to fly and whether they are to be flown on the single-engined aircraft or on the twin-engined aircraft, we are of the opinion that, in view of the social and economic conditions of the pupils in this country, they should not be called upon to pay any higher amount for this training in the future than what is demanded of them at present, namely, the sum of Rs. 4,500 from *ab-initio* training to the Dakota conversion course. We shall examine this matter further in the Chapter wherein we shall deal with the future activities of the C.A.T.C. and make our recommendations in this connection in that Chapter.

208. **Concessions in customs duty.**—We have been asked to examine whether concessions in customs duty on light aircraft, aircraft parts and light aircraft radio should not form part of the scheme for assistance for training private pilots. Customs duty has been charged at 2½% on these equipment at present. We are, however, aware of the fact that considerable difficulty is experienced in customs house as some of the parts which are intended to be used for the aircraft can also be used for other purposes. So far as we can see, there is no possibility of importing new aircraft if any, for private flying in this country in the near future. The Clubs will have to continue their flying activities with the aircraft that they have got, or the further aircraft which they can obtain from the Government and/or from the Air Force. The new training aircraft HT-2, which is being built at the Hindustan Aircraft Ltd., has been given its Type Certificate and is awaiting now acceptance by the Air Force as its basic trainer. As we are also going to recommend that aircraft for training purposes when it is available, it will be obvious that very few trainers will have to be imported for training purposes in India. In view of the high cost of private flying to which reference has been made in the above paragraphs, we would strongly recommend that light aircraft not exceeding a gross weight of 5,000 lbs., aircraft parts and light aircraft radio imported for the purpose of training in India should be exempt from customs duty. It will be for the Ministry of Communications and the Finance Ministry to evolve a procedure that may be considered essential for safeguarding the interests of revenue.

209. **Duty on Aviation Petrol.**—Flying clubs have to pay a customs duty of Rs. 0-15-9 per gallon for every gallon of aviation spirit which is consumed by the aircraft flown by them. In addition to this customs duty, some of the flying clubs have to pay a purchase tax which varies from one anna to three annas per gallon. This imposes a very substantial burden on the cost of flying. Normally speaking, a Chipmunk will consume about 7 gallons per hour, while a Tiger Moth will need 6½ gallons for the same period. The club will have, therefore, to pay for flying these aircraft for an hour, about Rs. 6 to Rs. 7 by way of customs duty. We expect the present 10 clubs in India, under the scheme which we are proposing in a subsequent Chapter, to do a normal flying of about 35,000 hours per year. They would thus be paying about Rs. 2,10,000 to Rs. 2,45,000 by way of customs duty. The clubs are granted a rebate of eight annas per gallon which means half the amount which they are called upon to pay by way of duty. They would thus be receiving half the amount of the sum varying from Rs. 2,10,000 to Rs. 2,45,000 by way of rebate. The net amount which would be left with the customs in this case, would be about Rs. 1,05,000 to Rs. 1,22,500. From what we have stated in the previous paragraphs it will be agreed that it is a matter of great importance to bring down the cost of flying if flying is to be made popular. If the rebate is granted to the extent of the full duty paid, instead of to the extent of 50% as it is granted at present, the cost of flying would come down by Rs. 3 to Rs. 3-8-0 per hour. We, therefore, strongly recommend that, for the purpose of encouraging sport flying and that too at as low cost as possible, rebate to the extent of 100% of the customs duty paid on the aviation petrol should be granted to the flying clubs.

210. **Landing and Housing fees.**—The aircraft owned by or loaned to the Clubs do not pay any landing or housing fees at their home airports. They have, however, to pay both these fees when they are landed or housed at outside aerodromes. Although the amount involved may not appear to be very large, we recommend that, as a matter of principle, private owned aircraft as well as flying club aircraft not exceeding gross weight of 5,000 lbs. should be exempt from the payment of landing and housing fees at all airports when they are engaged in sport or pleasure flights.

CHAPTER VIII

FUTURE ROLE OF THE FLYING SCHOOL AT THE CIVIL AVIATION TRAINING CENTRE

211. **Flying School started to meet the post-war shortage of Pilots.**—We have already given, in Chapter III, an account of the part which the Flying School at the C.A.T.C. has played in the training of Commercial Pilots in Post-War years. As it was felt that India did not possess and would not be able to develop for four or five years, "a regular outflow of trained personnel from Air Force Service, seeking employment in civil aviation, as is the case in more advanced countries", and as an acute shortage of pilots for the airline companies was developing in the country, proposals were put forward in 1948 for the establishment of the Flying School at the C.A.T.C., with the

immediate object of removing the shortage, and "laying the foundation of fully trained personnel for expansion during the next few years". It was not contemplated at that time that the Flying School will be a permanent training institution in the country. No one realised this more than the then D.G.C.A. himself. In recommending his proposals, he stated so far as can be foreseen, a central training organisation of the size now proposed will not be a continuing requirement indefinitely. By the end of three years, the present deadlock will have been broken, the further demand for trained personnel will have established at a lower level and it will probably be possible to reduce the training organisation to some extent. It is suggested that the programme of training should be reviewed annually and adjusted in the changing situation. The Government, therefore, sanctioned the establishment of the Flying School for a period of three years only in the first instance and its continuance has been extended, year after year, by the orders of the President. The last order was passed in March, 1952, when the continuance of the Flying School was sanctioned up to the 28th February, 1952. We are informed by the D.G.C.A. that sanction for its continuance beyond that period will be applied for in January, 1953.

212. **Permanent training institution the vital need of Air Transport Industry.**—Our conception of the role which the Flying School should play is fundamentally different. We do not look upon it as an institution intended principally to produce pilots to bridge the gap in the number immediately required for the airlines in the country. The question which we have put to ourselves is—what will be the qualifications which the pilots going in for a career in the air transport industry will require in the future, and what will be the nature and extent of the training which they will need for that purpose? It is these two vital considerations that have governed our recommendation in regard to the institution which should give training to those who want to follow a career in our air transport industry.

सत्यमेव जयते

213. We have already set forth, in Chapter IV, the new forms of Commercial licences that should be issued in the future, and have laid down the qualifications and tests which would be required for that purpose. We have shown, by a comparative statement, how, for the same privilege, the pilot in the future will have to possess a fuller and more comprehensive knowledge of ground subjects, to acquire a greater flying experience, to undergo a longer night and instrument flying, to obtain a more comprehensive technical knowledge covering a wide range of subjects including radio navigation, and to pass through successfully more stringent flying and technical examination tests. As we have already observed, "it is the knowledge, experience competence and skill of the aircrew which set the standards of safety and help their maintenance during air operations". How can the safety of the passengers and crew carried in the aircraft be promoted—has been our fundamental approach in examining the legislation which lays down the qualifications which we would require our pilots to possess in the future. It is, therefore, natural that we should expect our training institution to give such training to our would-be pilots, as would enable them to satisfy, maintain and promote this vital and fundamental need of the air transport industry. "The design, the size and the speed of the aircraft have undergone", as already stated by

us, "a revolutionary change". Our pilots in the future will have, therefore, to acquire higher knowledge, experience and skill to keep themselves fully in touch with development in aircraft and technique of operations. This is another important consideration which has influenced us in recommending the institution which should train our commercial pilots in the future. Our first recommendation, therefore, is that the Flying School at the C.A.T.C. should not be continued on an experimental basis, year after year. The Flying School should be made a permanent institution for giving training to pilots who intend to follow a professional career in the air transport industry in India.

214. **Flying School—a permanent centre of professional training.**—We have already explained, in Chapter VI, our reasons for recommending that the number of commercial pilots to be trained for a career in the air transport industry should be limited at present. We have examined the desirability of recruiting these pilots from the *ex*-personnel of the Indian Air Force. We have recommended that the maximum number of pilots who should be trained as commercial pilots per year for absorption in the air transport industry should not be more than 30. We have further recommended that half the number of these pilots should be recruited from the *ex*-personnel of the Indian Air Force under a pre-selection system like the one which is in force in the United Kingdom, and the other half should be trained at the Flying School to be specially run for that purpose. We are conscious of the fact that the number of pilots to be trained and the nature of training to be imparted to them will largely influence the nature of the organization that should be set up for that purpose. The Flying School at the C.A.T.C. will have to train only 15 persons at present per year as commercial pilots for a career in the air transport industry. The question may, therefore, be legitimately asked whether it is advisable or desirable to set up a full-fledged permanent institution for training such a limited number. It has, however, to be remembered that our object is to lay the foundations of building up a training institution in India like the one which exists at Hamble, or the one which recently came into existence at the Hague. India should look ahead and take a broader view of her responsibility for creating an institution where professional training could be given to pilots according to the best modern standards. Apart from training the above limited numbers of pilots, the institution will give conversion training on Dakota to those who hold 'B' licence at present, as well as to those who will be trained afresh at the Flying School. In view of the large expenditure that may be involved for giving conversion training on other aircraft like the Viking or the Constellation, we have recommended that such conversion training should be continued to be given by the airlines to their pilots on their own machines. It is, however, possible that pilots may require refresher courses, about which recommendations have been made by us in paragraph 163 of Chapter V. These refresher courses, if the airlines are not able to make arrangements for that purpose, may be given at the flying school. Under our new proposals, a pilot has to pass annually the test laid down for the renewal of his Instrument Rating. If the airlines are not able to provide facilities for their pilots to enable them to renew their Instrument Rating, they may be given the necessary opportunities to do so at the Centre.

215. **Training to be given at the Flying School.**—We recommend that the Flying School should provide:—

(1) Elementary flying training for Private Pilot's licences.
(2) Courses for Commercial Pilot's licences.
(3) A course for Pilot's Instrument Rating.
(4) Flying Instructor's course.
(5) Conversion to multi-engined aircraft.
(6) Night flying and astro-navigation courses.
(7) Refresher courses to meet requirements.

Cadets joining the Flying School shall have to undergo a course of training for a period of 2 years. We may indicate here the type of training which is given for this purpose at the well-known Flying School at Hamble.

216. After spending six months in the School Workshops undergoing basic engineering training and attending the appropriate lectures, the pupil at Hamble has to undergo a serious flying training programme for a period of 12 months. The Flying Training will include an intensive primary instrument flying course, night flying and cross-country work. Concurrent with the flying training, ground instruction is given in navigation, meteorology, visual signalling by Morse and Semaphore, International Air Legislation, Airmanship, Theory of Flight, Engineering, Rigging, Construction, care and maintenance of Flight Instruments, Packing, care and maintenance of parachutes, and radio aids. Towards the end of the second year the student takes a radio course which is designed to provide him with a sound knowledge of the radio equipment used in aircraft. This covers radio and radar aids to navigation as well as radio used for normal communication purposes. The student then passes to the more advanced stage of flying, which includes practical air experience of many of the radio aids, in the use of which he has then to be trained. Early in the third year the student begins the advanced navigation training. While this is primarily designed to qualify him for the certificate of competency for the Senior Commercial Pilot's Licence, it is possible for the student to qualify for the Certificate of Competency for either the Airline Transport Pilot's Licence or Flight Navigator's licence. During the final six months at the School, the last stage of the flying is completed and main emphasis is laid on the instrument and radio let-down under all-weather conditions, with the object of qualifying for the instrument rating. At the conclusion of the 3 years' training the student will have completed approximately 300 hours flying, of which approximately 120 hours will have been flown on twin-engined aircraft such as the Anson and Oxford.

217. **Flying School: Training it should give.**—This is a broad picture of the training which is given at Hamble at present. We consider it a matter of vital importance that training more or less on similar lines should be provided for our pilots in India during the course of 2 years. Training on such a systematic and scientific line is not possible unless a special training institution is properly and adequately equipped for that purpose. Therein lies our justification for recommending that the Flying School at the C.A.T.C. should be

made a permanent institution even if at the beginning it has to train only 15 students per year for the commercial pilots licence. The utility of the institution should not be judged by the number it trains. Its place in the nation-building activities of the country should be determined by the quality and excellence of the training it imparts and the final product it turns out. No such institution exists in India today. As the Indian Air Transport Industry will need the services of the scientifically trained pilots to enable it to utilise efficiently and economically the results of scientific research and advance in the aircraft industry and in the technique of their operations, a professional training centre capable of producing the best pilots becomes a national obligation. We, therefore, repeat our recommendation that the Flying School at the C.A.T.C. should be made a permanent institution and should be equipped and developed in such a manner as may enable it to give training on the best modern lines.

218. According to the new rules which we have recommended for the different categories of licences, 200 hours flying experience, of which at least 100 hours should be solo—is necessary for obtaining the commercial pilot's licence. If the training is obtained at an approved school, a total flying experience of 150, instead of 200 hours, may be regarded as sufficient. A much longer flying experience is, however, given both at Hamble and at the Hague, than the one which is absolutely necessary for a particular category of licence which the pilot obtains. The main reason for insisting on a longer flying experience at these schools is to prepare, equip and make fit the pilot for discharging his responsibilities for the modern airline work, and not to enable him to obtain merely his first Commercial Pilot's licence. We, therefore, recommend that training at the Flying School should be given for 225 to 250 hours on Chipmunk's, 30 hours on Ansons and 30 hours on Dakotas. The extent of the above flying experience required from the pupils undergoing training at the Flying School may be reduced in the case of pupils holding a private pilot's licence, by the Civil Air Board if it considers desirable to do so. We are not, however, going into the details of the subjects to be taught. We are not laying down any syllabus for that purpose. We suggest that if the recommendations that we have made for the new category of licences are accepted, the question of details in regard to the nature and extent of training that should be imparted at the Flying School at the Centre in the future should be laid down by the Civil Air Board which we are recommending in a subsequent Chapter.

219. **Method of selection of trainees.**—One of our Terms of Reference has asked us to recommend what the qualifications of the Commercial Pilot should be, and what number of such pilots should be trained. The reference also asks us to examine the method of their selection. We have already discussed in this and the previous Chapter the qualifications which the future pilot should possess and the number of pilots who should be trained for the air transport industry. We shall now deal with their method of selection.

220. A sound general knowledge in English, Mathematics and Science is considered essential for understanding and appreciating the problems connected with the instruction and training of a modern pilot. No one who has not reached such a standard of knowledge can make any efficient and rapid progress in a school where training

is imparted to pilots. It is, therefore, necessary to fix a minimum educational qualification before a person is admitted to the school. Students who are fresh from their schools are admitted for training both at Hamble and at the Hague. The School Leaving Standard, however, in those countries is of a higher order than the one that exists in India. As the State is subsidising such training and as the State will continue to subsidise it in the future if our recommendations are accepted, it is but natural that we should admit to the school only such pupils as have got the requisite minimum qualifications. After careful consideration, we have come to the conclusion that no one who has not reached the standard of Intermediate Examination and who is not over 25 years of age should be allowed to apply for admission to the School. There should be three distinct tests through which the student should pass before he is selected for admission. There should be a competitive qualifying examination. This examination should be held by the Civil Air Board. The student should be tested for his general knowledge, and particularly, in English, Mathematics and Science. Those who successfully pass the qualifying examination should undergo the second test, namely interview by the Civil Board, which we have recommended in a subsequent Chapter. The successful candidate should be assessed at the interview for his intelligence, character and aptitude for following a career as a pilot. The third test should be the Medical Test, that is to determine his medical fitness for the line. It is only those who pass successfully all these three tests that would be admitted to the School. As it is desirable to make the best use of the subsidised flying, which is given at the Flying Clubs, we recommend that subject to an applicant passing all the three tests, *viz.*, qualifying examination, interview and medical test, preference should be given for admission to the Flying School to those who hold a private Pilot's licence. This will enable us to make the best use of subsidised flying and to ensure the admission into the Flying School for advanced training of such pupils as have already shown aptitude for flying. It is to be remembered that the number which we have recommended for admission is 15 per year. The Civil Air Board will have, therefore, to decide, as a result of the qualifying examination, interview and the medical test, and subject to the condition of giving preference to those who hold a private pilot's licence, who these 15 or any other number that may be fixed, should be. It is possible that the selected candidates even after going successfully through the tests mentioned above, may not be found suitable for undergoing a flying career. It should, therefore, be left to the Civil Air Board to decide, as a result of the report submitted in that connection by the Principal of the Flying School, whether his further training would be profitable to him and should therefore be continued, or he should be discharged from the School.

221. **Standardisation of training aircraft and equipment.**—Training is imparted to the pupils of the Flying Clubs on a number of types of light aeroplanes. Apart from L-5s, which are considered suitable for *ab-initio* training, clubs have got a large number of Tiger Moths, Chipmunks, and Piper Cubs, on which flying training is given. Tiger Moths, Chipmunks, Piper Cubs and L-5s are considered suitable for *ab-initio* training. At the Flying School at the C.A.T.C. training is imparted on Chipmunks. There is no other variety of light single-engined aeroplane, on which training is given at Allahabad. In

addition to the training of pilots on single engined light aeroplanes at the Centre, training is also given on twin-engined Anson and twin-engined Dakota. No such training on twin-engined aircraft is given at the Clubs. We have already referred in a previous Chapter to the desirability of introducing H.T. 2 as a trainer for flying when it becomes available. In the meantime, we have to look at the question from a practical point of view and make the best and economic use of the aeroplanes that are available. As the Flying School has already got Chipmunks, Ansons and Dakotas, and as we consider them suitable for *ab-initio* and advanced training, we recommend that training at the Flying School be given on Chipmunks, Ansons and Dakotas, and those aeroplanes (should be considered as standard aeroplanes) for that purpose until Chipmunk is replaced by H.T.2 for light single engine training. It has been brought to our notice that the present Ansons at the C.A.T.C. are not considered very suitable for imparting training in twin-engine flying. The C.A.T.C. has, however, got 11 Ansons. We would not like to suggest their replacement by any other twin-engined machine. If, however, they prove as a result of further experience, to be not very desirable for twin-engine training, we recommend that training at the Flying School should be given on Chipmunks and Dakotas, so that the pupils may receive training both on single-engined and twin-engined aircraft before they pass out of the Centre.

222. **Financial implications of running the school under our above proposals.**—The flying School at the C.A.T.C. has got 12 Chipmunks, 3 Ansons and 3 Dakotas, with which they give training at present. We have recommended that only 15 pupils should be admitted annually to the School for training. The course of training shall be for two years. It will, therefore, be obvious that 30 students will be under training at the School from the second year onwards. We have recommended that training should be given to those pupils for 225 to 250 hours on Chipmunks, 30 hours on Ansons, and 30 hours on Dakotas. This training will have to be spread over two years. We shall have, therefore, to provide annually 3,750 hours for training on Chipmunks, 450 on Ansons and an equal number of hours on Dakotas. We shall, therefore, require a minimum number of 7 Chipmunks, 1 Anson, 1 Dakota for that purpose. We will not have, therefore, to incur any further capital expenditure by way of adding fresh aircraft for the training we have in view at the Flying School.

223. We have already stated in a previous Chapter that we are not satisfied with the arrangements that are made at present for the accommodation of the trainees and the accommodation of the staff. We have also recommended that it is desirable to provide better and more varied amenities for the pupils and the staff at the C.A.T.C. It is difficult to state what the amount of capital expenditure that will be required would be for this purpose.

224. We are aware of the fact that the Centre has been running three other Schools in addition to the Flying School. It has been contended that it is therefore difficult to work out the cost of the Flying School at the Centre. We have already dealt with this subject very fully in Chapter III of our Report. We need not, therefore, go over the same ground again. We have calculated, on the lines indicated in that Chapter, the cost of running the Flying School on the

basis of training 15 pupils for the commercial pilot's licence under the scheme proposed by us. The details of the cost are given at the end of this Chapter. It will cost nearly Rs. 53,700 to give training to a pilot under our proposed scheme. This cost is inclusive of the provision for depreciation and insurance. It compares favourably with the sum of Rs. 52,948 which was incurred as cost for training a pupil at the Centre in 1951-52, particularly when it is realised that longer flying training both on single-engined and twin-engined aircraft and greater ground training will be given to the pupils in the future than in the past. As the scheme proposed by us is, therefore, not going to impose any additional financial burden on the Government, we have no doubt that the establishment of the Flying School as a permanent institution will be acceptable even on financial considerations.

Our colleague, Group Captain Chatterjee, although not opposed in principle to the establishment of a Central Civil Flying Institution on a long term basis, is not in agreement as to the desirability of continuing the C.A.T.C. in its present form. He does not consider that the existing Air Companies can absorb 30 Pilots per year solely from wastage for some time to come. Further, there is in his view no indication that the industry will expand within the next 5 to 7 years to such an extent as will enable it to absorb the existing unemployed 'B' Licence holders, in addition to those it is now proposed to train at the C.A.T.C.

The Raja Saheb of Bhadri is of the view that such number of pilots as the industry is likely to require in the near future could very well be met by training a few selected pilots upto the commercial pilot's standard by the flying clubs. Thereafter, their further advanced training could be adequately catered for by the National Airways Corporation which, it is understood, is shortly coming into existence and which, it is presumed, will have a well-organised training establishment. If this suggestion is carried out, he feels that it will effect good saving in the working of the C.A.T.C.

225. **Fees payable for future training.**—A pupil has to pay the sum of Rs. 4,500 to the Flying School at the Centre at present for his training from *ab-initio* to the Dakota conversion course. As stated in Chapter III, it cost the State nearly Rs. 53,000 in the year 1951-52 to give him training for that purpose. It cost the pupil Rs. 1,500 for his boarding, lodging, travelling and other incidental expenses. As stated, therefore, in Chapter VII, a pupil has to find a sum of Rs. 6,000 at present for undergoing his training at the Flying School at the Centre from *ab-initio* to the Dakota conversion course. Under the scheme which we have proposed the pupil will receive training in the future for a period of two years. The amount which he will have, therefore, to spend for his boarding, lodging, travelling and other incidental expenses will come to Rs. 3,000. In other words, he will have to find a sum of Rs. 7,500 as against the sum of Rs. 6,000 which he has to spend at present, for completing his training at the Flying School in the future. This is arrived at on the supposition that he will be paying the same fees for his training in the future as in the past, namely, Rs. 4,500. It will be seen from the details given at the end of this Chapter that it will cost the State about Rs. 56,000 to train a pupil at the Centre in the future under the new scheme proposed by us. The training at present lasts for

one year. The training in future will require two years for completion. At the end of the training, the pupil will be able to obtain employment, if available, in the air transport industry.

226. As the State will be spending a substantial sum for his training, and as we have been asked to examine the incidence of the cost of training on pilots, airlines and the Government we went into the question as to the amount of fees which should be charged for the training imparted to him. It was brought to our notice that, even under the previous British Government, a very substantial part of the cost of education and training given to Indians was borne by the State. For instance, while a cadet on the Training Ship 'Dufferin' has to pay only a sum of Rs. 800 now for the period of his training for two years, it cost the State Rs. 8,000 for his training in the past, and the State has to spend Rs. 11,000 at present for that purpose. If we were to fix, therefore, the maximum fees which the trainee should pay at the Flying School at Rs. 4,500 when it would cost the State about Rs. 56,000, it should be considered fair and equitable. Two important considerations have to be borne in mind in this connection. India has passed from foreign rule to the building up of a Welfare State. It will, therefore, be recognised that the responsibility and obligations of the State for providing facilities for education and training of Indians have become far greater than before. While the total cost incurred by the pupil at present comes to Rs. 6,000, it will go up to Rs. 7,500 in the future. While the cost of training incurred by the State at present stands at about Rs. 53,000, it will come to about Rs. 56,000 under the new scheme. As the pupil will have to spend a larger sum under the new scheme, the Committee consider it unfair to impose a further burden on him by increasing his fees. Moreover, the Government, particularly of a Welfare State, have to recognise their responsibility for providing training facilities for its people. Taking all these circumstances into consideration, the Committee consider it fair, just and reasonable that no increase should be made in the fees of Rs. 4,500 which the pupil pays at present for his training. We, therefore, recommend that a pupil should not be charged a sum exceeding Rs. 4,500 for the training which he will receive for a period of two years at the Flying School, at the Centre, under the scheme recommended by us.

CIVIL AVIATION TRAINING CENTRE

1 Statement giving particulars of the estimated Total Cost of giving training to 15 pupils per year at the Flying School under the scheme proposed by the Committee.

Estimated Flying ***Hours*** :

	Hours
Chipmunks	3,750
Anson	450
Dakota	450
	4,650

Estimate of Expenditure :

			Rs.
Fuel and Oil			2,59,725
Spares for Maintenance and overhaul, except major overhaul of Dakota and P & W Engine			39,900
Overhaul of P & W Engine and major overhaul of Dakota (Proportionate cost)			31,800
Technical Staff :			
A. *Engineering Staff* :	Rs.		
1. Chief Engineer at Rs. 1,600 p.m.	1,600		
2. G. E.s at Rs. 600 p.m.	1,200		
2. G. E.s at Rs. 500 p.m.	1,000		
Mechanics of all grades		45,600	
Storekeepers & Cleaners		61,200	
			1,06,800
B. *Flying Staff* :			
2 Instructors at Rs. 1650 p.m.	3,300		
1 Instructor at Rs. 1000 p.m.	1,000		
1 Instructor at Rs. 700 p.m.	700		
C. *Ground Staff* :			
1 Link Instructor at Rs. 700 p.m.	700		
1 Meteorologist at Rs. 500 p.m.	500		
1 Ground Training Inspector at Rs. 750 p.m.	750		
1 Navigation Instructor at Rs. 750 p.m.	750		
1 Radio Operator at Rs. 450 p.m.	450		97,800
Establishment, including Medical and Welfare			52,000
Depreciation on Aircraft & other equipments	1,66,840		
Insurance	40,000		
Maintenance of Buildings			10,000
Total for 15 Pupils		Rs.	8,04,865
Estimated Expenses per Trainee		Rs.	53,658

NOTE : Price of Fuel is Rs. 3-7-6 for 73 Octave and Rs. 3-8-0 for 87 Octave and Rs. 3-8-6 for 100 Octave, per gallon.

Statement giving the details of the Amount to be provided for Depreciation and Insurance on the Aircraft, to be employed at the Flying School, at the C. A. T. C., for giving Training under the scheme recommended by the Committee

सत्यमेव जयते

DEPRECIATION :

	Rs.	Rs.
7 *Chipmunks*		
Total cost	3,18,000	
at 12 1/2 per cent		39,750
1 *Anson*		
Total Cast	3,11,700	
at 20 per cent		62,340
1 *Dakota*		
Total Cost	1,39,000	
at 25 per cent		34,750
		1,36,840
Depreciation on Spares, Link Trainers and other equipment		30,000
		1,66,840

INSURANCE :

	Insurable Value	
	Rs.	
CHIPMUNKS	1,78,875	(After deducting 3 1/2 years depreciation)
ANSON	93,510	(After deducting 3 1/2 years depreciation)
DAKOTA	49,230	(After deducting depreciation for 2 years and odd).
	3,21,615	
		Rs.
Insurance Cost at 12 per cent		40,202
	say	40,000

CHAPTER IX

FLYING ACTIVITIES OF THE AIR WING OF THE NATIONAL CADET CORPS

227. **What National Cadet Corps is.**—The National Cadet Corps movement has now been in existence for nearly 5 years. It was constituted under an Act of the Legislature which was passed in 1948. The aims of the movement are:—

(a) the development of leadership, character, comradeship and the ideal of service,

and

(b) the stimulation of interest in the defence of the country to the widest possible extent.

Although no person is liable for active military service by virtue of his becoming a member of the Corps, the movement contributes, no doubt, to the solution of free India's first problem, which is, in the words of our Prime Minister, "to consolidate her hard-won freedom and strengthen her defence". The movement, however, is considered as mainly an educational one, and the expenditure on the raising and maintenance of the units has, therefore, to be met by the Provinces and the States, as education is a Provincial responsibility. As it is recognised that there is also a defence aspect of the scheme, certain items of expenditure are met from the Central funds.

228. **The Corps is composed of three Divisions:—**

(a) The Senior Division, recruitment to which could only be made from amongst the boy students of a university;

(b) The Junior Division, recruitment to which could only be made from amongst the boy students of a school; and

(c) The girls Division, recruitment to which could only be made from amongst the lady students of a university or a school.

Both the Senior and the Junior Divisions comprise of three Wings:

(1) An Army Wing

(2) A Naval Wing

(3) An Air Wing.

As we are concerned with the flying activities of the movement, we shall examine what the present position of its Air Wing is, and what the potentialities of its expansion are in the future.

229. **Progress of the N.C.C. Movement.**—At present Bombay, Calcutta and Madras have raised one unit each of the Senior Division Air Wing. They were raised in Bombay and Calcutta in July, 1950. The unit in Madras was raised in April, 1951. Each unit consists of 2 N.C.C. officers and 80 cadets. Twenty-five cadets are enrolled every year. At the end of the third year the total strength of the unit will be 75 cadets. In the fourth year, out of the intake of the 25 cadets of the first year, only 5, who are considered suitable and who desire to join the Indian Air Force, will be retained for further training. It will,

therefore, be clear that the normal fresh intake of 25 cadets per year will bring the total strength of the Air Squadron of the N.C.C. to 80 cadets. During the first and the second year, cadets do basic training including theoretical training on aeronautics. They also do aeromodelling, and 5 hours of air experience is also given to them every year. In the third year of training, the senior cadets, 25 in number, undergo their flying training. Arrangements have been made with the flying clubs to give them this training. The present position, therefore, is that flying arrangements for the 25 cadets of each of the Air Wing Units at Bombay and Calcutta have been made with the flying clubs at those places. Madras Flying Club will give training to the 25 cadets of the Air Wing at Madras from 1953. Moreover, a unit of the Air Wing has been raised this year at Delhi, Kanpur and Patna. This means that six Air Squadrons of the Senior Division of the N.C.C. exist today in India. The Clubs will have, therefore, to give flying experience of 45 hours to each of the cadets of the different units raised in the country. The number of cadets of the N.C.C. who will receive their flying training at various flying clubs from 1952, and the total number of hours which they will fly, will be as under:

Years	No. of cadets receiving flying training	No. of Clubs giving flying training	Total No. of flying hours
1952	50	2	2,250
1953	85	3	3,825
1954	165	6	7,425

230. **Future Expansion.**—The Chairman had several informal talks with Colonel Virendra Singh, Director, National Cadet Corps Directorate, on the subject of the future expansion of the Air Wing of the Senior Division. He was informed by the Director that an Air Squadron will very likely be raised at Jullundur and Nagpur in 1953. He was told that the Air Headquarters were very keen to raise an Air Squadron in every city where there was a flying club. The present policy of the Air Headquarters is to arrange with the flying clubs to give flying training to the cadets of the N.C.C. Colonel Virendra Singh also hoped that the Government of Orissa would agree to raise an Air Squadron at Bhubaneswar. It is, therefore, anticipated that 3 additional Air Squadrons would be raised in the year 1953. This will bring the total number to 9 Squadrons. The strength of these Squadrons will be the same as the Squadrons already raised. If these Squadrons come into existence in 1953—as we are informed they are likely to come into existence—it will mean that 75 additional cadets will have to be given flying training at the clubs. The total number of cadets who will, therefore, be receiving their flying training in 1955 will be 270. They will be given training at 9 flying clubs and the total flying hours would come to 12,150.

231. It was further pointed out to us that the maximum use was not being made of the permanent Air Force staff and equipment. Moreover, we were told that there was a very big demand from students to join the Air Wing of the National Cadet Corps. On

account of the present financial stringency, it was, however, not found possible to raise additional units. The National Cadet Corps Directorate, therefore, desires to double the strength of each of the Air Squadrons existing at present or that might be coming into existence hereafter. We understand that this proposal is at present under the consideration of the State Governments, as it is they who have to finance the expenditure for the training of the cadets of the Air Wing. If, however, the State Governments agree to finance the expenditure involved in doubling the present strength of the Air Squadrons, 480 cadets will have to be given flying training in 1955, and 540 cadets from 1956. This means that 9 flying clubs in the country will be provided with the work of 21,600 flying hours in 1955 and with the work of 24,300 flying hours from 1956 onwards.

232. **N.C.C. Cadets—Assurance of flying work to Clubs.**—We have already recommended in a previous Chapter that pupils who wish to go in for a career in the air transport industry should be trained at the Flying School at the C.A.T.C. for obtaining their commercial pilot's licence. We have also recommended that flying training for the Private Pilot's licence should be given by the flying clubs. The fact that very few people are coming in for pure sport flying has also been stressed. It will, therefore, be recognised that the number of flying hours required to give training to the cadets of the National Cadet Corps will provide the very useful and the much-needed work to the flying clubs in the future. They will thereby be playing their own part in enabling the clubs to gather the elements of economic stability.

233. **Who pays the cost of flying training of the N.C.C. Cadets.**—All flying training has to be provided for the cadets of the National Cadet Corps free of cost. Each cadet will be given training up to the Private Pilot's licence, *i.e.*, for 45 hours. This training will be, as stated above, given by the flying clubs. As the ordinary citizen, under 28 years of age, pays the sum of Rs. 25 per hour for every hour flown to the flying clubs at present, amount on the same basis will have to be paid on account of the N.C.C. cadets for the flying training to be given to them. This means that a sum of Rs. 1,125 will have to be paid to the flying club on behalf of each cadet who is trained by it. We wanted, therefore, to know who was paying the cost of this flying training on behalf of these cadets at present, and who would pay it on their behalf if the strength of the unit is, as proposed, doubled in the future.

234. Each of the Bombay and Bengal Flying Clubs has been giving flying training to 25 cadets of the National Cadet Corps. An equal number of cadets of the N.C.C. will be given flying training by the Madras Flying Club from 1953. Each of the cadets will have to fly for 45 hours. In the case of a pupil under 28 years of age flying at the club, the flying club receives at present a sum of Rs. 25 as flying fees from him and a flying subvention of Rs. 20 per hour from the Central Government. The flying club at Bombay receives a further flying subvention of Rs. 20 per hour flown, from the Bombay State, and the Madras Flying Club receives a flying subvention of Rs. 10 per hour flown, from the Madras State, in the case of a pupil belonging to that State. As the flying training to the N.C.C. cadets

is to be given to them free of cost, the States concerned have undertaken to pay to the flying clubs the fees of Rs. 25 per hour flown on behalf of these cadets, which, in other cases, would have been paid by the pupil under 28 years of age, flying at the club. It is estimated that, including the temporary membership fee etc., each of the States will have to pay about Rs. 30,000 to the club for the training of 25 N.C.C. cadets. The position, therefore, is that the Bombay and the Madras States will continue to pay the flying subvention which they pay at present, and in addition to that, will pay the fee of Rs. 25 per hour for the N.C.C. cadets of the Air Wing raised in their States. For instance, the Bombay State will pay one grant of Rs. 20 per hour from the Public Works Department, and the other grant of Rs. 25 per hour, specifically for the N.C.C. cadets, from their Education Department. Although the Bombay State considers that the grant of Rs. 25, which is paid for the N.C.C. cadets, should be paid by the Central Government, the Chief Minister of the State has been pleased to inform the Chairman that there is no intention of withdrawing the additional grant given by the State for the training of the N.C.C. cadets. So far as the Madras State is concerned, we understand that the State will continue to give both the grants -- the flying subvention and the sum of Rs. 25 for each of the cadets of the N.C.C. recruited in that State. We further understand from the Director, National Cadet Corps, that as the Government of India have been paying a substantial amount of subsidy to the flying clubs, they will not pay the fees at Rs. 25 per hour flown on behalf of the cadets of the N.C.C. These fees will have to be paid by the States concerned in accordance with the arrangement arrived at with them when the N.C.C. movement was started. We have set forth this position at some length to stress the fact that if the fees which the clubs normally receive from the pupils undergoing flying training at the clubs, were not to be paid to them either by the Central or the State Government, it will be impossible for them to give flying training to the N.C.C. cadets. We can only, therefore, express the hope that the State Governments would bear the cost of the flying training of the N.C.C. cadets at Rs. 25 per hour in accordance with the existing arrangement, as they, we are sure, are anxious to foster and develop the sport of flying amongst the students of their States and would, therefore. give all possible financial assistance for giving flying training to the cadets of the Air Wing of the National Cadet Corps raised in their States.

235. **Doubling the strength of Air Squadrons—Responsibility of financing its cost.**—There are, as stated above, 6 Air Squadrons of the Senior Division of the N.C.C. existing in India today. They are raised at Bombay, Calcutta, Madras, Delhi, Kanpur and Patna. The flying activities of the cadets of these Air Wings will provide the six flying clubs at those places with a total flying work of 7,425 hours. When the further 3 Air Squadrons are raised in the current year at Jullundur, Nagpur and Bhubaneswar, the 9 flying clubs of India will get a total flying work of 12,150 hours from 1955 onwards. Each of these clubs will, therefore, be assured of a total annual flying work of 1,350 hours. This will, as we have remarked above, make some little contribution in promoting the economic stability of the flying clubs. If a club however, has to fly its aircraft only for 1,350 hours in a year, not only will the cost of flying be high, but it will also suffer a serious loss even with the financial assistance which it is

getting today from the Central Government. We, therefore, enquired of the Director of the National Cadet Corps as regards the progress which his proposal for doubling the strength of the units of the Senior Division, Air Wing, had made. We were informed that a letter was addressed to all the State Governments at the end of October last, intimating to them that the best way to meet the very big demand from students, that they should be given an opportunity to undergo training in the N.C.C., was to increase "the present strength of each technical unit". The State Governments were requested to submit their views to the National Cadet Corps Directorate in regard to the proposal to raise the present strength of the Air Squadron, from 2 officers and 80 cadets, to the proposed strength of 2 officers and 160 cadets. We further understand that a conference of the representatives of State Governments will shortly be convened to consider this proposal, as it affects not only the strength of the Air Squadron, but other Squadrons of the Army and the Navy also. It is difficult to anticipate the decision of the conference. From the information which we have received, we are inclined to think that the State Governments will not, under the existing financial condition, be prepared to undertake further responsibility for the cadets of the N.C.C. According to the figures supplied to us, a little over Rs. 90,00,000 were spent by the different States and a little over Rs. 47,00,000 by the Central Government for all the activities of the cadets of all the Wings of the National Cadet Corps in India up to the end of 1951. The issue involved is really one of vital importance. The States are making their own contribution towards the financing of the N.C.C. movement. They are called upon to do so because it is a youth movement and an educational movement. It, however, cannot be denied that the training given to the cadets of the N.C.C. will be creating a potential reserve of men with aptitude for work in the army, the navy and the air force. It will, therefore, be difficult to say that there is no force in the contention that the Central Government should bear a larger share of the burden than they have been doing today for financing this movement.

236. **Demand from College students—Real essence of sport flying—Sustaining power of Flying Clubs—It must be met.**—Moreover, we have been asked by the Government to examine how private flying generally, and private flying by students of colleges and technical institutions in particular, could be encouraged in India. The fact that there is a big demand from the students of colleges to join the unit of the Air Wing of the N.C.C.—as stated by the Director of the N.C.C.—augurs well for developing the air sense of the people in this country. Here is not the problem of encouraging flying amongst the students of the colleges. It is a question of how to carry out our responsibility for meeting the demand. We would, therefore, recommend that doubling the existing strength of the units of the Senior Division Air Wings should be adopted as the first step to meet this demand from the students of colleges and technical institutions. As to who should pay the additional fees to meet the cost of flying training of the increased cadets of the Air Wing, we would not like, as stated above, to anticipate the decision of the coming conference. We would, however, strongly urge that this increasing demand for private flying from the students of colleges should not be allowed to founder on the rock of constitutional propriety or economic disability. We, therefore, recommend that in

case the State Governments do not undertake to finance the additional expenditure involved in doubling the existing strength of the cadets, of the Air Wing, the Central Government should raise their subsidies to the Flying Clubs to that extent so that they may thereby be able to discharge their responsibility for encouraging private flying amongst the students of colleges and technical institutions in this country. If the existing strength of the units of the Air Wing of all the 9 Squadrons which would come into existence this year is doubled, the 9 flying clubs in India will get a total flying work of 24,300 hours per annum from 1956 onwards. This will assure each of the 9 out of 10 existing clubs, of an annual flying work of about 2,700 hours. We consider such assurance of work quite essential not only for the economic stability of the clubs, but also for their very existence. The flying activities of the cadets of the N.C.C. will re-kindle the desire for sport flying in this country. The future of the flying clubs will largely depend upon the extent of the flying work which will be supplied to them by the cadets of the N.C.C. We shall further refer to this subject in the next Chapter on the future of the flying clubs.

CHAPTER X

THE FUTURE OF THE FLYING CLUBS

237. We have given, in Chapter II, an account of the flying club movement in India. We have dealt with its progress and achievements. We have pointed out how the flying clubs developed the love for sport flying and gave training to pupils for obtaining commercial pilot's licence. We have also drawn attention to the service which the flying clubs rendered during the war and the manner in which they bridged the gap, due to the acute shortage of pilots at a crucial period in the development of the air transport industry in India. Our assessment of the different activities of the flying clubs has led us to record our view, in Chapter II, that they are a great store-house of enthusiasm and inspiration for drawing out the potential air sense of the people of the country. We believe that, with adequate financial help and proper leadership, the flying clubs can play a magnificent role in the future in popularising flying, spreading airmindedness, and building up abiding traditions in the field of civil aviation. We have, therefore, already recommended that the institution of the flying club should be kept alive and in full vigour in the country in the future, as in the past.

238. **Flying Clubs—Scope for improvement.**—We have already stated that there is great scope for improving the working and training of the flying clubs. The ground instruction given in the clubs requires to be put on a sound and efficient footing. The briefing and de-briefing of the pupils in connection with their flying training requires close, careful and regular attention. The technique of flying training calls forth greater thought and higher standard. Flying instructors need to be trained at the Flying School of the Air Force. A higher standard of discipline has to be attained. There is also scope in some clubs to raise the standard of management both from the view points of economy and efficiency. We have already referred to these important matters in a previous chapter. We shall not, therefore, deal with them now again.

239. **Problem facing the flying clubs.**—We have already recommended that flying clubs should give flying training for sport flying and for the private pilot's licence. While there should be no bar to the flying clubs giving training to pupils at their own cost for the commercial pilot's licence, we have already recommended that those who wish to go in for a career in the air transport industry, and thus intend to receive proper training as air transport pilots, should be trained with the assistance of the Government at the Flying School at the C.A.T.C. With the large number of unemployed pilots holding the 'B' licence, with the limited number of commercial pilots to be trained in the future at the Flying School, and with the demand for sport flying having reached its ebb, the problem of the future of the flying clubs has been causing us serious concern. How to encourage and induce persons to go in for sport flying and how to provide such flying training at the clubs at a reasonable cost are problems that require careful solution.

240. **Need for regular flow of work for flying training.**—We have already expressed our view that we cannot confirm or contradict the statement of the D.G.C.A. that the cost of training at the flying clubs is very high. We have already pointed out the difficulties of determining this cost in view of the unavailability of the correct data. The cost of training at the flying clubs compares, however, favourably with the cost of training at the Flying School of the C.A.T.C. When we say this we are conscious of the fact that a few hours training was given at the C.A.T.C. on twin-engined aircraft in 1951-52. Apart from this training on twin-engined aircraft, factors which affect the economic working of the flying school at the C.A.T.C. also govern the working of the flying clubs. The incidence of overheads depends largely on the fullest utilisation of the aircraft. The utilisation of the aircraft depends upon the number of pupils that offer for training and the number of hours for which they will fly. These are matters which are beyond the control of both the Flying School and the flying clubs. We are, therefore, of the opinion that the fundamental problem is how to secure the flying work for such a number of hours for the flying clubs, as would enable them to have the fullest utilisation of their aircraft and technical personnel and others and contribute to the economic working of the institution. We should, therefore, like to examine whether it is possible to secure for the flying clubs such flying work as would enable them to get a regular flow of pupils for training for a satisfactory number of hours, year after year.

241. **How the main flying work will disappear hereafter.**—According to the figures supplied to us by the flying clubs, 164 pupils were undergoing training for 'A' licence and 113 for 'B' licence at all the flying clubs in India on the 30th September, 1952. It is the 'B' pilots who give the clubs work for a substantial number of flying hours. While these 113 pilots would give them flying work for about 30,000 hours, the 164 pilots undergoing training for 'A' licence would not give them work for more than 7,400 hours even if training for the Private Pilot's licence is to be given under the new rules that we have proposed. As we have already pointed out, over 70 per cent of the flying are supplied by those who undergo training for 'B' licence. That has contributed

during the post-war years to the staying power of the clubs. As there has already been a large number of unemployed pilots holding 'B' licence and as a further number of the list of the unemployed is likely to be added when the present pilots undergoing training at the clubs finish their course it will be a very undesirable policy for the State to allow any unlimited number to be trained for obtaining commercial pilot's licence in the future. That is why we have recommended the number to be trained to be restricted. For reasons already given, we have recommended that this limited number should be trained at the flying school at the C.A.T.C. The natural corollary is that the main work of the clubs, which they get at present, will disappear. Moreover, a large number of the pilots who undergo training for a 'A' licence have been doing so for the purpose of obtaining subsequently the 'B' licence. The number of sport fliers at the clubs, will, therefore seriously diminish. The point that we wish to stress is that we cannot count upon the existing number of 'A' pilots, offering themselves at present, to continue to fly for training in the future. Even with the existing number, the working of the club cannot be put on an economic basis, as neither can the aircraft nor can the personnel be fully utilised. The problem, therefore, is how to find sufficient work for the future activities of the club.

242. **Flying activities of the cadets of the N.C.C.—Basis of our scheme.**—As stated in the previous Chapter, the cadets of the Air Wing of the N.C.C. can supply the clubs with a regular flow of a certain number of hours for training. From 1954 they will give to 6 flying clubs work for 7,425 hours per annum. With the development of 9 Squadrons and with the doubling of the present strength of the Air Unit, these 9 clubs will get an annual flying work of 24,300 hours. This means that each of the nine, out of the ten flying clubs existing in the country today, can depend upon a regular flow of work of 2,700 hours per annum. If this materialises, we believe the clubs could be assured of a fairly good amount of work for the utilisation of their aircraft and personnel. From the calculations that we have made, that would not by itself be sufficient to put them on an economic footing and to promote their economic stability. We have devoted a considerable thought to this question. Our colleagues, Mr. K. K. Roy and Mr. Subramaniam, in consultation with Mr. Kathju, Principal of the C.A.T.C., evolved a scheme, which we fully endorse, whereby the future of the clubs can be assured and they could be run at a reasonable increase in the amount of financial assistance which they receive at present from the Central Government and the States. Our proposal is that each of the 10 clubs in the country should be assured of a minimum flying work of 3,500 hours. They should be run with 2 Chipmunks and 5 Tiger Moths. The existing number of planes owned by and loaned to the flying clubs, and the planes separately stored at the C.A.T.C. should be re-distributed for this work amongst the 10 clubs in the country. We have worked out the standard cost of flying on the basis of 3,500 hours with 2 Chipmunks and 5 Tiger Moths. We have adopted the scale of pay based on the average of the pay which is in force, barring certain exceptions, at the clubs today. On this basis our calculations show that, normally speaking, flying training could be given at about Rs. 80 per hour if the

club is assured of the minimum work of 3,500 hours per year. The flying work which the cadets of the N.C.C. will give will come to about 2,700 hours. This is arrived at on the understanding that 60 cadets of the N.C.C. will have to be given flying training at the clubs every year from 1956 onwards. Each of the clubs will have, therefore to find a further minimum work of about 800 hours per year. If they are able to do so, we are of the opinion that the clubs could continue to run in the country in the future and maintain their economic equilibrium with the financial assistance which they would get from the Centre and the States.

243. The scheme outlined above is based on the understanding that the cadets of the N.C.C. will supply a regular flow of flying work of 2,700 hours to each of the 9 out of the 10 existing clubs, year after year, from 1956. They will be able to do so only if the proposal for doubling the present strength of the air squadron is accepted. We have already expressed our views in the previous Chapter as to who should bear the additional cost that will be incurred in giving flying training when the present strength of the air squadrons is doubled. Whatever may be the final decision of the Central Government and the States in regard to this proposal for doubling the strength of the cadets of the existing 6 air squadrons and the 3 new air squadrons that will be raised in the current year, the fundamental basis of our scheme is that the clubs should be assured of a regular flow of flying work for 3,500 hours per annum. If the proposal for doubling the present strength of the cadets of the air squadron does not ultimately materialise, each of the 6 out of the existing 10 flying clubs will get flying work for only 1,238 flying hours from 1954 onwards. From 1955, each of the 9 out of the 10 existing clubs will get a regular flow of flying work of 1,350 hours. We have also, therefore, to consider the problem that in case the proposal for doubling the strength of the cadets of the air squadrons does not materialise, how we should find the balance of the flying hour work that will be necessary to ensure existence of the flying clubs in the future.

244. Air squadrons of the N.C.C. will provide each of 3 out of the existing 10 clubs for 1,275 hours in the current year. In 1954 they will provide work for each of the 6 out of the 10 existing clubs with an annual flying work for 1,238 hours. From 1956 each of the 9 out of the existing 10 flying clubs will get an annual flying work for 1,350 hours. This is on the understanding that the proposal for doubling the present strength of the cadets of the air squadrons is rejected. In that eventuality, clubs will have to be provided with such additional work as would give each of the 10 flying clubs a total flying work of 3,500 hours per annum. We do not know the extent of the flying work which these clubs will receive under the new proposals which we have already recommended for reducing the present flying fees from Rs. 25 to Rs. 10 in the case of pupils under 28 years of age and to Rs. 15 in the case of pupils over 28 years of age, irrespective of their nationality, for obtaining their private pilot's licence and for the 5 hours' flying experience which they will need for keeping their licences current. We are, however, inclined to think that if the fees are reduced as recommended by us, it is not unlikely that some of the major clubs as

are located in important cities like Bombay, Calcutta, Madras and Delhi, will receive an annual flying work from sport fliers to the extent of about 1,000 hours. In respect of these clubs, additional work will have to be found not for 2,150 hours, but only for 1,150 hours. Whatever, therefore, may be the extent of the flying work which the clubs might receive under our new proposals for reducing the flying fees, it is a matter of fundamental importance that the balance of the flying work that will be required to make up the total flying work per annum, of 3,500 hours after taking into consideration the work provided by the cadets of the N.C.C. and the work provided by sport fliers, will have to be found for the flying clubs. In view of the demand for flying from the students of the colleges and the universities, as indicated in the last Chapter, and the part which the flying training to be given to them will play in the spreading of air-mindedness and developing the potentialities for a reserve in case of emergency, we recommend that flying training should be given to selected school and college students and teachers, free of cost, to make up the balance of 3,500 hours of flying work per annum for each of the 10 clubs in the country. The main problem to be remembered is that we have to assure the existence of the flying clubs as an institution in the country in the future. This cannot be done unless they have got an assured amount of regular flying work per annum. Such assured work can only be given if the necessary financial assistance is given to them both by the Centre and the States. These are the fundamental considerations which have influenced us in making our recommendations for a regular flow of assured flying work to the flying clubs.

245. **Present high fees discourages sport flying**.—The question, therefore, arises as to the amount of fees that should be charged for private flying. A pupil under 28 years of age has to pay today the sum of Rs. 25 for flying per hour. This is considered very high by all concerned. The Madras Government have suggested that the fees should be brought down from Rs. 25 to Rs. 7-8-0 per hour. Shri Govind Vallabh Pant, the Chief Minister of Uttar Pradesh, has remarked in his letter to the Chairman, that "this fee in itself is prohibitive for most people in our country and unless training is subsidised to a considerable extent, many in spite of their enthusiasm for flying will be deterred from learning it". The cadets of the Air Squadrons of the N.C.C. are given training free of cost. We were told by the responsible officers of the N.C.C. that there was a very big demand from the college students for such training. This only emphasises the fact that it is not the absence of a desire to go in for the sport of flying that pupils do not offer themselves for training, but it is the cost of training which really prevents them from going in for such sport. It is significant to note that even with the highly developed civil air transport industry in the United Kingdom, they are giving a large number of scholarships to the cadets of the Air Training Corps and the cadets of the Combined Cadet Force for going in for sport flying. They were recently raised from 300 to 500 per annum. Every cadet receives his training free of cost. The clubs receive £145 for giving flying training for 45 hours to each cadet. From the figures supplied to the Chairman by the Association of British Aero Club and Centres we find that the cadets to be trained were distributed among different clubs. It is

not, therefore, difficult to understand how the flying clubs in the United Kingdom, with the work of training of the cadets of the A.T.C. and the working of training the volunteers of some of the reserves of the Royal Air Force, have been able to preserve their economic equilibrium even without the help of any subsidy which would be paid to them direct by the State. The facts which we have stated above lend unmistakeable support to the widely held view that what the clubs need today in India to attract a reasonable number of sport fliers is, possession of resources to give them flying training at a sum which should not exceed Rs. 10 per hour. This, they cannot do without the financial assistance from the Centre and the States.

246. People above 28 years of age cannot also cultivate the pleasure of private flying as the fee charged in their case is not Rs. 25. But it is Rs. 45 per hour. Moreover, in the case of the non-Indians, the fees become really very prohibitive. We understand that it is Rs. 75 per hour. A pupil, who has got a licence, has to show evidence that he has flown for a certain number of hours within a fixed period before the date of its renewal. It will be appreciated that the high fees per hour which are in force in India today discourage many persons from renewing their licences. From the figures which we have given in another Chapter, it will be noted that while the number of 'A' licences which were issued in India between 1928 and 1951 was 2,665, the number that was current at the end of 1951 was only 661. With a view, therefore, to develop the sport of flying and to encourage the cultivation of air sense in the country, which the Government are anxious to foster, the scale of the existing fees for flying per hour should be substantially reduced. In view of the facilities which are gilven to Indians in the U.K. and in other foreign countries for undergoing technical training at the same rate which it is given to their nationals, we consider it fair that the non-Indians in this country should not be charged a higher fee than that charged to Indians in India. We, therefore, repeat our recommendation that, with a view to develop sport flying and to spread airmindedness in the country, a person under 28 years of age, irrespective of his nationality, undergoing flying training at the flying clubs, should not be charged more than Rs. 10 per hour for every hour flown to enable him to obtain his private pilot's licence and for 5 hours flying experience which he will require to keep his licence current. If a person is over 28 years of age, whether he is an Indian or non-Indian, he should not be charged more than Rs. 15 per hour for the same purpose. In addition to the hours of flying required for obtaining private pilot's licence and for keeping his licence current, a person, irrespective of his age, going in for sport flying at the clubs, should be charged at Rs. 25 per hour. This concessional fee will not entitle him to fly as a sport flier at the Club for more than 20 hours during a year. This concessional flying for 20 hours will be subject to the condition that the total hours of subsidised flying of all sorts shall not exceed at a Club 4,500 hours per year. The Committee recommends that the effect of this reduction in fees for private flying should be carefully watched, and that the progress and development of private flying as a result of such reduction should be carefuly studied. The question can be re-examined in the light of the experience gained, at the end of five years.

247. **Standard flying cost.**—We have given at the end of this Chapter the particulars of the standard cost of running a club for 3,500 hours with two Chipmunks and 5 Tiger Moths. Chipmunks, for the purposes of depreciation, have been valued at Rs. 35,000 each. The clubs have been directed at present to insure them for a sum of Rs. 55,000 each. Shri Bhalla, who is a member of our committee, conveyed to us in his capacity as D.G.C.A. that he was going to issue a fresh directive to the Flying Clubs that they should not be insured for Rs. 55,000 in the future, but should only be covered for Rs. 35,000. We have, therefore, taken that figure in our calculations for the purpose of depreciation. Our estimate of the average cost of flying at the Flying Clubs comes to about Rs. 80 per hour, inclusive of the amount of Rs. 9·20 provided for depreciation and insurance. If all the ten Clubs run for an aggregate total of 35,000 flying hours, the expenditure will come to Rs. 28 lakhs, calculated on the basis of Rs. 80 per hour. If the Clubs, however, can find work of flying for the maximum number of 4,500 hours per annum, the total expenditure will come, at an average rate of Rs. 69 per hour, to Rs. 31,05,000. How is this cost to be met? Let us examine that problem.

248. **How the income and expenditure of the clubs could be balanced.**—It will be observed from Chapter VII that the total amount of subsidy which the Flying Clubs received from the Central Government for the period of 3 years ending the 31st March, 1952, was a little over Rs. 35 lakhs. The Central Government provides at present the sum of Rs. 15 lakhs for subsidising the Flying Clubs. We are of the opinion that the Central Government should continue to provide not less than that sum as subsidy in the future. The State Governments gave a little over Rs. 25 lakhs as subsidy to the Flying Clubs during the same period of three years. We have already stated that we have not been able to ascertain what amount out of this subsidy the Clubs will have to spend for services rendered by them to the States. On a rough estimate, the amount that is likely to be available for purely the flying activities of the Clubs out of the amounts, which they receive as subsidy from the States at present, will be about Rs. 5½ lakhs per year. We are, therefore, taking for the purpose of our calculations the sum of Rs. 5½ lakhs as the amount of financial assistance which will be available to the Clubs from the States for meeting the expenditure of their flying activities. So far as the cadets of the N.C.C. are concerned, the States have been paying the fees of Rs. 25 per cadet for the existing strength of the Squadrons raised in their States. The question as to who should bear the additional cost in case the strength of the Squadron is doubled is not yet decided. We have already recommended, for reasons mentioned by us, that in case the States do not undertake to meet this additional expenditure, the Central Government should meet it. If the strength is doubled, the total number of hours to be run from 1956 will come to 24,300 hours. Fees amounting to Rs. 6,07,500 will have to be found for this purpose. According to the existing arrangement, Rs. 3,03,750 will have to be paid by the States for this purpose from their Educational Grant. This is in addition to the grant of subsidy which they have been giving to the clubs at present. We must remember, that it is the pupils who are paying the fees at present for obtaining their private pilot's licences. This is in addition to the subsidy which the flying clubs receive. The cadets of the N.C.C. are to be trained free of cost. Someone, therefore, should pay the fees on their behalf. Any

grant which the States or the Central Government might make for that purpose should. therefore, be construed not in the nature of financial assistance but in the nature of the fees which are being received from the pupils at present. The amount to be thus received will come to Rs. 6,07,500.

249. As stated above, the fundamental basis of our scheme is that each of the 10 flying clubs should be assured flying work to the extent of 3,500 hours per annum. The Hind Provincial Flying Club has got 3 branches. Practical considerations, therefore, make it necessary to find a total flying work of 5,000 hours per annum for that club. Moreover, the maximum flying work which a flying club can do under our scheme is 4,500 hours. We have also to examine the financial implications of each of the clubs doing the flying work for 4,500 hours under our scheme. The subsidised flying scheme which we have proposed is based, therefore, on two fundamental requirements, (1) that each of the flying clubs should be provided with an assured flying work of 3,500 hours, and (2) that each of the club will receive financial assistance up to the maximum of 4,500 flying hours per annum. We give below the total amount of income which all the 10 flying clubs will receive for their flying activities from the year 1954 onwards, and the amount of expenditure which they will incur in the light of the circumstances mentioned by us in this and the above paragraph: —

	1954	1955	1956	1956 (in case the present strength of the cadets of the air squadron is doubled.)
Total No. of flying hours to be flown by the cadets of N. C. C. at all the Flying Clubs	7,425	12,150	12,150	24,300
INCOME				
Fees to be received on account of all the cadets of the N. C. C. to be trained at all the Flying Clubs	1,85,625	3,03,750	3,03,750	6,07,500
Subsidy from the Central Government . .	15,00,000	15,00,000	15,00,000	15,00,000
Subsidy from the States .	5,50,000	5,50,000	5,50,000	5,50,000
Petrol rebate on the existing scale	1,13,750	1,13,750	1,13,750	1,13,750
Additional petrol rebate as recommended by us .	1,10,195	1,10,195	1,10,195	1,10,195
Total Income . .	24,59,570	25,77,695	25,77,695	28,81,445
EXPENDITURE :				
At an average rate of Rs. 80/- per hour inclusive of Rs. 9.50 per hour for Depreciation & Insurance, for a total number of 35,000 hours flown at all the 10 Flying clubs .	28,00,000	28,00,000	28,00,000	28,00,000

Expenditure for 1,500 extra hours provided for the H. P. F. C. for reasons mentioned above, at Rs. 80/- per hour . .	1,20,000	1,20,000	1,20,000	1,20,000
Total Expenditure .	29,20,000	29,20,000	29,20,000	29,20,000
Additional subsidy that will be required . . .	4,60,430	3,42,305	3,42,305	38,555

250. Now let us examine what the total expenditure will be at all the ten flying clubs if the maximum number of hours at each of these clubs is 4,500 per annum. As we have recommended that fees only at Rs. 10 per hour should be charged in the future for obtaining the private pilot's licence, etc.. the additional income which will be received for these 4,500 hours, *i.e.*, difference between, 4,500 and 3,500 will come to Rs. 1,00,000. As regards the expenditure, as the overheads will be distributed amongst a larger number of hours, the average cost will go down from Rs. 80 to Rs. 69. The result will be that for a total of 45,500 hours to be flown at all the Clubs, the total expenditure will come to Rs. 31,39,500. As against this, the total income will be:

in 1954 ...	Rs. 25,59,570
in 1955 ...	Rs. 26,77,695
in 1956 ...	Rs. 26,77,695
and if the present strength of the cadets of the Air Squadrons is doubled:	Rs. 29,81,445.

251. The additional amount of subsidy which will therefore have to be found in 1954, 1955 and 1956 will be as follows: The figures given in the first case are based on the understanding that the Clubs will fly for 3,500 hours each, except the Hind Provincial Flying Club which will fly 5,000 hours (all its branches put together); in the second case, they are based on the understanding that nine Clubs will fly for 4,500 hours each and the Hind Provincial Flying Club will fly for 5,000 hours.

	1954	1955	1956	1956 (in case the proposal to double the strength of the Air Squadrons is accepted)
	Rs.	Rs.	Rs.	Rs.
Additional subsidy required—flying hours: 36,500. . . .	4,60,430	3,42,305	3,42,305	38,555
Additional subsidy required—flying hours: 45,500. . . .	5,79,930	4,61,805	4,61,805	1,58,055

252. It is important to remember that in the first case the expenditure to be incurred is inclusive of the sum of Rs. 3,35,800 for depreciation and insurance. In the second case, the amount of insurance and depreciation comes to Rs. 4,18,600.

253. We have to consider the question of the movement of the flying clubs from the broad national viewpoint. What we have stated above refers only to the 10 existing Clubs. The proposals made by us are intended to ensure their future existence and to promote their economic stability. When we, however, consider the vastness of the country and the necessity to start new flying clubs at other centres for enabling all parts of the Union to have opportunities for the development of airmindedness and for cultivating the sport of flying amongst its people, it will be recognised that we have yet a very long way to go. We have not touched that problem, because we realise that we may not be able to cope with it fully in view of our present financial resources. There is also another important aspect of this problem to which we consider it our duty to refer. The Hind Provincial Flying Club has got today two satellite clubs. Some of the existing flying clubs may also desire to start satellite clubs or new branches. In view of the financial considerations, we have also not touched that problem. It will, however, we hope, be agreed that if love for sport flying is to be developed and if the cultivation of airmindedness is to be promoted and a potential reserve of man power with an aptitude for flying is to be created, we must keep all the existing clubs in full vigour and in proper economic health. We are, therefore, of the opinion that the additional amount of subsidy, which may be necessary under the scheme outlined above, should be considered as fair, just and modest.

254. We have given above the particulars of the total amount of financial assistance which the Clubs will receive both from the Central Government and the States. We have based the balancing of the income and the expenditure on the basis of the total amount of help to be received from all sources. We are, however, conscious of the fact that all Clubs will not receive financial assistance from the States. We also realise that the amount of the financial assistance which the different Clubs will receive will not be also on a uniform basis. It is true that the amount of help which a Club will receive from a State cannot be utilised for financing the activities of the other Club. It is, therefore, important that the Centre, in making its financial contribution, should take that factor into consideration. Let us illustrate this point by an example. If 3,500 hrs., for instance, are flown at a Club, it will require a sum of Rs. 2,80,000 to meet its expenditure. If the club receives Rs. 75,000 as assistance from the State and Rs. 35,000 by way of fees from the cadets of the N.C.C. and other private fliers, then the balance of Rs. 1,70,000 should be made up by the Centre. Such rationalisation of the assistance is essential to finance the activities of the Clubs and thereby to promote the love of sport flying in the country under the scheme visualised by us. We, therefore, recommend that the total amount of financial assistance to be given to the Flying Clubs from all sources should be so rationalised that the Centre should give it such an amount for balancing its budget as will be necessary to fill the gap, after taking into consideration the income received by the Club from all other sources, including the financial assistance received from the State.

255. **Future management and control.**—The management of the clubs and control over their activities have been subjects of great controversy in recent years. We have already referred to this important subject in previous Chapters. Experience has shown that investing one single individual with very wide powers, as has been done at present, does not lead either to economic management, efficient control or proper harmony. The success of an institution mainly depends upon those who are responsible for its management from day to day. Interference with such management will militate against the services of competent and responsible talent becoming available to the flying clubs. At the same time we cannot ignore the vital need of the Central Government and the States to satisfy themselves that the financial assistance which they would give to the club was properly utilised. That could be achieved in the first instance by their representatives being associated with the management of the flying clubs. We, therefore, recommend that the Central Government and the State Governments should have the right to nominate one representative of their own on the management of the clubs. It is understood that those State Governments will only have the right, who would be giving financial grant to the clubs located in their States. There would be no such control as is vested in the D.G.C.A. over the activities of the club in the future as it exists at present. With a view to ensure the best use of the funds which the clubs would receive, we are giving the power of supervision and control for that purpose to the Civil Air Board which we propose should be constituted in this country. We recommend that the Civil Air Board which we are proposing should exercise such supervision and control as may be necessary over the clubs for ensuring the best use of the funds with which they are assisted either by the Central Government or by the States. We have to remember that it is not continuous and strict control which generates the sense of responsibility. it is the power of initiative and the absence of interference from outside authority in day to day affairs which sustains confidence and develops the sense of responsibility. That is the only way to attract best people to manage the affairs of the clubs. With the normal functioning of the clubs under the management which we have indicated above, we have no doubt, that the object which we all have in view, that the management should be carried on in an economic and efficient manner and that the funds which they may have at their disposal would be properly utilised, would be achieved with the power of supervision and control which we are going to vest in the Civil Air Board which we are proposing in a subsequent Chapter.

256. **Curriculum for the training of private pilots.**—We recommend that the curriculum which is laid down by the I.C.A.O. for this purpose should be adopted as the curriculum under which training should be given at the flying clubs. This curriculum is given in Appendix 'G'. We are, however, giving the power of laying down the details of the curriculum to the Civil Air Board, to which we are making reference in a subsequent chapter.

257. **Standardisation of training aircraft and equipment.**—We have to invite attention to para. 221 of Chapter VIII in this connection. What we have stated about the flying school in that paragraph equally applies to the flying clubs. The difference is, that while the flying school will be equipped to give training on twin-engined aircraft, the

flying clubs will give training on single-engined aircraft only. Moreover, we have to make the best of the aircraft that are available. In the scheme that we have outlined we have recommended that the training at the flying clubs should be given with 2 Chipmunks and 5 Tiger Moths. As long as these aircraft are available and serviceable, we would not like to recommend the spending of large capital sums for the purpose of acquiring trainers. When these aircraft have finished life, we recommend that H.T.2 trainer should be the aircraft with which training should be given in private flying at the clubs. Till then, practical considerations require that the flying clubs should make the best use of the existing aircraft for the purpose of promoting private flying in this country.

258. **Scales of pay for flying instructors and other staff employed in the training institutions.**—We have to invite attention in this connection to the scales of pay which we have mentioned in the statement of standard cost, which will be found at the end of this Chapter. We must point out in this connection that there is no intention and there should be no attempt to bring down the scale of pay which is being paid to some of the seniormost pilots in the country who carry on the work of giving flying instruction at the clubs. Moreover, we have made the recommendation that the flying instructors should be trained at the Flying Instructors' School of the Indian Air Force. We have also recommended that they should be categorised. We therefore, feel that it is not advisable to lay down any standard scales of pay for the instructors at the flying clubs. We are of the opinion that the scales of pay should be based on the grounds of merits and experience. The Civil Air Board, which will have the power to exercise supervision and control over the use of the funds made available to the flying clubs, will have opportunity to set the matters right in case they find that the scales are high, or are not justified on grounds of merits and experience.

259. **Joy rides.**—Joy rides are essential for developing the air sense of the people. We, therefore, repeat the recommendation which we have already made, that the flying clubs should be allowed to give joy rides in aircraft either owned by them or in aircraft loaned to them, at a reasonable charge which should include the cost of service.

260. **Selection of pupils for admission to the clubs.**—We do not propose to lay down the same educational standard for the pupils coming in for private flying as we have laid down for those who want to go in for a career in the Air Transport Industry. Anyone who is medically fit and shows an aptitude for flying should be admitted to the Club, by the management of the Club, for that purpose. The number of cadets to be admitted for training to the clubs should be such, as would not increase the flying work of the Club beyond 4,500 hours per annum. As the successful working of the scheme of training at the Flying Clubs in the future will depend on the amount of financial assistance, which will be available to the Clubs, it will be obvious that the maximum number of hours to be flown at the Clubs will have to be limited. This we put down at 4,500 hours at a Club per annum. The number of pupils to be admitted for training will have to be regulated in accordance with the maximum number of hours to be flown.

STANDARD COST OF OPERATION OF A CLUB

Annual Flying—3,500 hours.

Aircraft : 2 Chipmunks valued at Rs. 35,000 each.
5 Tiger Moths valued at Rs. 7,500 each.

	Rs.		Per hour Rs.
FUEL AND OIL	70,000		20
SPARES	28,000		8
ENGINEERING STAFF :			
One Chief Engineer (A. B. C. D)	1,350		
One Ground Engineer	600		
One Asstt. Ground Engineer	500		
Three Mechanics Gr. A @ Rs. 200	600		
Six Mechanics Gr. B @ Rs. 150	900		
Seven Mechanics Helpers @ Rs. 100	700		
Four Cleaners @ Rs. 75	300		
One Carpenter @ Rs. 90	90		
One Store-keeper	150		
One Peon	65		
	5,255	p. m. 63,060	p. a. 18·02
FLYING STAFF :			
One Chief Pilot Instructor	1,400		
One Pilot Instructor	700		
Two Jr. Pilot Instructors @ Rs. 500	1,000		
	3,100	37,200 p. a.	10·63
OFFICE STAFF :			
One Asstt. Secretary	500		
One Chief Accountant	300		
One Accounts Assistant	160		
One Typist-cum-clerk	125		
Two Flight Clerks at Rs. 140	280		
One Stenographer	160		
Two Peons @ Rs. 65	130		
One Sweeper	65		
Two Watchman @ Rs. 65	130		
One Mali	65		
	1,915	22,980 p. a.	6·56
DEPRECIATION OF AIRCRAFT :			
2 Chipmunks 70,000 at 12 1/2 per cent	8,750		
5 Tiger Moths—37,500 at 25 per cent	9,375	18,125	5·17
DEPRECIATION ON MISCELLANEOUS EQUIPMENT :			
Workshop machinery & Tools at 10 per cent	1,500		
Binoculars, Barograph, Compasses etc	140		
Officer Furniture	1,000	2,640	0·75
INSURANCE OF AIRCRAFT :			
11 months at 15 per cent & 1 month	15,005		4·3
GENERAL CHARGES :			
Crew Insurance CPI	20,000		
PI	15,000		
JPI	10,000 x 2 @ 2½ per cent	1,375	
W. C. Insurance Engg. Rs. 2,450 x 12 @ 2 as % Rs. 2, 805 x 12 @ 2 as % Office 1915 x 12 at 2 as per cent		486	

	Rs.	
Other Insurance	550	
Certificate of Airworthiness	350	
Uniform	200	
Postage, Telegrams & Telephone	2,500	
Printing & Stationery	2,000	
Audit Fee	750	
Travelling Allowance	500	
Provident Fund @ 6¼	7,704	
Sundries & Periodicals	500	
Rents, Rates & Taxes	2,500	
Light Power & Water	2,400	
	21,815	6·23
Total	2,91,225	79·66
	Say—	80·00

NOTE : Salaries shown above include Dearness and other Allowances.

CHAPTER XI

PROBLEM OF UNEMPLOYMENT

261. **Extent of unemployment.—possibilities of new openings.**— One of the questions which has caused us great concern and anxiety is the growing unemployment of pilots holding 'B' licences. Everyone who appeared before the Committee, realised the seriousness of the situation which it has created. As pointed out by us in the Introductory Chapter, pupils at all the clubs whom we met have drawn our pointed attention to this growing menace and have appealed to us to make such recommendations as might enable them to secure employment. Trainees of some of the clubs submitted their suggestions in writing for the solution of this problem. Representatives of the Indian Flying Crew Association gave their evidence in this connection at Calcutta. We have carefully examined the suggestions that they have made and the view points that they have stressed and the recommendations which we propose to make are set forth in subsequent paragraphs.

262. From such data as we have been able to secure, it is estimated that nearly 100 pilots holding 'B' licences are unemployed today. This by itself is a serious situation. It will become still more serious when those who are undergoing training for obtaining 'B' licence at the flying clubs will receive that licence in the course of a few months. Their number, according to the figures supplied by the clubs, is 113. We understand the airline companies are not in a position to indicate to us their requirements for fresh entrants in the next few years. On the basis of normal wastage of 7% to 8%, the air transport industry is not likely to need more than 27 new pilots every year. We have dealt with this point at some length in Chapter VI. Moreover, with the formation of the new Corporation the expected introduction of faster aircraft and the possibility of adopting a more rational and economic pattern of the services, it is very likely that the industry may not need the 330 pilots whom it employs today. There is, however, a possibility of expansion of the industry. A new international service may be organised from India to the Far East. Some of the feeder services might come into existence. Such expansion might absorb the pilots who may have to be relieved as a result of the introduction of faster machines, greater utilisation of the existing Vikings, and a scientific re-constitution of the existing services. We, however,

do not know what policy the Government are going to adopt in this connection. In reviewing the situation, we can therefore only keep in mind the existing strength of the pilots who are engaged by the air transport industry. Taking all aspects of the question into consideration, we have, therefore, recommended that the number of pilots who should be trained as airline pilots for the future should not be more than 30 per year. We are conscious of the fact that that is not going to solve by itself the present acute problem of unemployment. It will, however, be agreed that if more persons than those who will be needed as commercial pilots in the future are not trained, it will not aggravate that problem.

263. **Removal of a vital difficulty essential for employment.—** Many of the pilots holding 'B' licence who are unemployed today have not got, we are told, the endorsement of Dakota in their licence. The recent decision to give Dakota conversion training at the C.A.T.C. only, and the issue of the order that the sum of Rs. 4,700 should be charged for that purpose, are highly unfair. We have dealt with this problem very fully in Chapter III. No pilot without such an endorsement can act as a co-pilot. Endorsement in his licence is essential for getting employment. Moreover, these pilots will have to fly for a certain number of hours to keep their licences current. We have, therefore, already recommended that these pilots holding 'B' licences should be given the conversion training free of cost at the C.A.T.C., and they should be given facilities for flying at the expense of the State for keeping their licences current. It will be really unfortunate if these pilots after having spent Rs. 12,000 to Rs. 15,000, should find that they cannot keep their licences current for want of further financial facilities, or cannot seek employment unless they are in a position to pay a further sum of Rs. 5,000. We are convinced that their grievance is just, and we recommend that the State should take all steps to remove it. The recommendations which we have already made will, we are sure, go a long way in removing this just and legitimate grievance which pilots have been feeling very bitterly.

264. There is one note of caution which we, however, consider it our duty to sound. Before giving the further training indicated in the above paragraphs to the unemployed pilots holding 'B' licence, free of cost, it is essential, in the interests of all concerned, that pilots seeking such training are fit in every way for going in for a career in the air transport industry. We, therefore, recommend that the unemployed pilots holding 'B' licence, desirous of going in for conversion training at the C.A.T.C., should appear before the Civil Air Board, and should be admitted for such training at the Flying School at the C.A.T.C. only after they are selected for that purpose by that Board. In view of the standard which we have set for those who wish to go in for a career in the air transport industry, we consider it quite essential that the Civil Air Board should judge their competence and aptitude for that career before selecting them for the necessary conversion training at the C.A.T.C.

265. **New openings with the further Indianisation of the Pilot's Service.—**There is a widespread feeling that the number of foreign pilots engaged in the Indian Air transport industry should be replaced by qualified Indian pilots in due course. This is a legitimate demand which, we recommend, should be met in time to come We would

however, like to add that there should not be any interference with the existing arrangements or contracts which have been made for engaging the services of foreign pilots. They may, subject to the fulfilment of the existing contracts, be replaced by Indian pilots who are already engaged and who have the necessary qualifications to fill the higher posts. This would naturally make room for further employment at the bottom. It has, however, to be remembered that a good number of the existing foreign pilots in India are men of long and varied experience in airline operations and in administration of airlines. It is not, therefore, desirable to replace them until Indians with sufficient experience and qualifications become available. The replacement of the foreign pilots by Indian pilots is bound to be a matter of slow process. The existing unemployed pilots, with proper qualifications, should be given an opportunity to fill the posts that may be created by the replacement of foreign pilots by Indian pilots in the airlines. The D.G.C.A. estimated in February, 1951, that the number of foreign pilots engaged in this country was 61. One of the arguments advanced for the continuance of the Flying School at the C.A.T.C. was that Indian pilots should be trained at that place, so that they might replace the foreign pilots in course of time. According to the information supplied to us by the airline companies, both scheduled and non-scheduled, the number of foreign pilots employed by them was 35 out of a total strength of 330 pilots engaged by these lines as on the 30th June, 1952. We would take the lower number, therefore, into consideration. Even that is not a very small number. If the services of the existing unemployed pilots are engaged to the extent of that number of foreign pilots, it is bound to greatly help the solution of the present problem. We, therefore, recommend that whenever a pilot engaged by the airline companies has been raised to a higher position to replace a foreign pilot, the vacancy thus created should be filled from the number of the existing unemployed pilots holding 'B' licence if they are properly qualified for that purpose. It may be added that the Ministry of Communications should prepare and maintain a list of the unemployed pilots holding 'B' licence in the country so that they might remain fully in touch with the nature and extent of this problem which has been causing concern to all of us.

266. **Possibility of finding opening in the Air Force.**—The Air Force has in the past recruited A and B licensed pilots trained at the flying clubs because U.P.S.C. was not able to meet its full demand of recruits. We understand that they have now confined their recruitment through the U.P.S.C. only. We would, however, like to strongly urge on the Air Headquarters the necessity to consider, as a special case, the claims for the present unemployed pilots holding 'B' licence for such recruitment, provided they offer themselves for that purpose. We recognise that it is not an easy matter. The consideration of age and other qualifications will have to be taken into account. We would, however, recommend that the Air Headquarters should be requested to give their best consideration and help in recruiting from the existing unemployed pilots holding 'B' licence, provided they are found suitable and meet minimum requirements for such recruitment. This will no doubt, help to relieve, to some extent the existing acuteness of the problem of employment. The Committee, however, would like to point out that the existing unemployed pilots are averse to join the Air Force. They do not want to go through the U.P.S.C.

qualifying examination, which is equivalent to the Matriculation standard. They have also represented that they should be exempted from full Air Force training. While the Committee recommends to the Air Force to consider favourably their request to exempt them from going through the U.P.S.C. qualifying examination, they cannot support their demand that they should be exempted from full Air Force training.

267. **New avenue of employment.**—There is also a possibility of training Indians for special types of aircraft and special types of work, such as dusting of crops, spraying of chemicals, anti-malarial work, anti-locust operations, aerial surveys, etc. It will, no doubt, require special qualifications. It is difficult for us to say when pilots for such work will be demanded and to what extent. Some experiments have already been made with the help of the American pilots in Rajasthan. Some lessons have been given to Indian pilots in low flying for this purpose in Bikaner. We would, therefore, recommend that such of the unemployed pilots holding 'B' licence as may be found suitable for this work should be given special training for that purpose at the expense of the State. That will be a new avenue which may be open to them in the future for relieving existing unemployment. A few pilots may be trained as glider instructors and employed in the development of gliding in India.

268. **Reduction in the normal hours of work not a desirable solution of unemployment.**—It has been suggested to us that the number of hours for which co-pilots fly at present should be reduced to 60 per month. We have also been urged that a directive should be issued that the pilot should not be made to work over-time. We do not consider that this is a practical solution of the problem of unemployment. It has to be recognised that it is not a sound policy to help the solution of unemployment by imposing new financial burdens on the existing air transport industry. We cannot, therefore, support such a proposal.

सत्यमेव जयते

269. **Employment as Air Traffic Control Officers.**—A suggestion has also been made that preference should be given to the existing unemployed pilots holding 'B' licence for filling the posts of Air Traffic Control Officers. It has been contended that persons with experience as pilots will be able to discharge their duties and responsibilities as Air Traffic Control Officers better than those who are without such experience. We, therefore, recommend that if any of the existing unemployed pilots holding 'B' licence desires to serve as an Air Traffic Control Officer, he should be given preference to fill that post, when available, provided he fulfils other conditions of recruitment.

270. **Selection essential basis of employment.**—We do not think that it is possible to absorb all the existing unemployed pilots in the air transport industry. It is difficult to say whether all of them hold qualifications which would be rightly demanded of pilots going in for a career in the air transport industry. Selections will have to be made for this purpose and we have already recommended that it would be for the Civil Air Board to select those who should be given further conversion training before they could be employed in the airlines. While it will be difficult, therefore, to assure employment

to all the unemployed pilots at present, we believe that, if the recommendations which we have made in the above paragraphs are implemented, they will effect a fair solution of the existing problem of unemployment.

CHAPTER XII

CIVIL AIR BOARD

271. **Safety in air—a matter of national concern.**—Civil Aviation has made fair progress in India during the post-war period. From a little over 3,16,000 passengers and 10,000,000 lbs. of mails and freight carried in 1947, the scheduled and non-scheduled services in India carried in 1951 a little over 5,00,000 passengers and 226,000,000 lbs. of freight and mails. Although the traffic in passengers has not maintained the progressive increase during the last three years, the jump in the freight carried is remarkable. Moreover, night service has now become a regular feature of our civil aviation activities. This growing development in civil aviation demands that the airline companies should build up and maintain the highest possible reputation for safety, efficiency and comfort. The maintenance of safety should, however, be the supreme responsibility of all concerned. We have already referred to this fundamental consideration in paragraph 130 of Chapter IV. Apart from maintaining the airworthiness of the aircraft at every stage, safety in air mainly depends on the knowledge, experience and skill of the pilot and other aircrew, and the efficient response and control of the ground organisation. How the highest standard of safety could be promoted and how its continued maintenance could be enforced become therefore, matters of national concern.

272. **All power vested in one authority.**—The selection, training and passing out of the aircrew under the different levels play, therefore, a vital part in the promotion and maintenance of the safety standard. The Indian Aircraft Act and the Rules made thereunder prescribe, therefore, the nature and extent of the knowledge in ground subjects and the experience in flying which a pupil should possess, and the tests which he should undergo before he can obtain his licence. The D.G.C.A. lays down the syllabus and the curriculum under which training should be given to reach the standard laid down by law. Flying Clubs and Flying School at the C.A.T.C. give him the necessary training for the purpose. The Flying School is run by officers directly appointed by the D.G.C.A. The D.G.C.A. enjoys also wide powers of control over the activities of the Flying Clubs. We have referred to the extent of this control in paragraph 69 of Chapter II. The D.G.C.A. also appoints examiners for conducting technical examinations and carrying out flying tests. In other words, the selection of the pupils, the laying down of the syllabus and the curriculum, the appointment of the teachers and the instructors, the conduct of examinations and the issue of licence, all these powers are vested in one authority.

273. **Need for an independent controlling body.**—Training of the aircrew has not only the responsibility of building up a competent air personnel for the air transport industry, but it is also concerned with the creation of a potential reserve of man power which could be

mobilised for the air defence of the country. It is, therefore, desirable that the representatives of the airlines and of the Air Headquarters should have a voice in the selection of the pupils and in laying down the details of their instruction and training. This desirability becomes an obligation when the pupils have to be trained mainly at the cost of the State. Moreover, it is a recognised principle of education and training that those who are responsible for teaching should not have the power to sit in judgment over their own work. We, therefore, are of the opinion that a body specially constituted for that purpose and consisting of men of competence and experience representing different interests, should be entrusted with the task of selecting pupils, laying down the details of curriculum and training and appointing examiners for assessing the standard of training given and maintained at the training institutions. We, therefore, recommend that the selection of the trainees to be admitted to the Flying School at the C.A.T.C. in the future should be made by the Civil Air Board, the composition and function of which we are laying down in a subsequent paragraph. We also recommend that the Civil Air Board should lay down the details of the curriculum and the training which should be enforced by the training institutions. We also recommend that the examiners, who should conduct technical examinations and carry out flying tests, should also be appointed by the Civil Air Board. The D.G.C.A. will be responsible for the working of the C.A.T.C. He will employ the examiners appointed by the Civil Air Board for examining and testing the pupils at the C.A.T.C. Licences will be issued by the D.G.C.A. in accordance with the results announced by the Civil Air Board. After examining the question from all these different aspects we are convinced that in view of the existing circumstances in the country and in the present stage of the development of civil aviation in India, the entrusting of the task mentioned above to the Civil Air Board is necessary not only for promoting the standard of safety and training, but also for strengthening public confidence in our training activities.

274. **How questions of operational efficiency handled in the U.K. and in India.**—We have dealt, in the above paragraph with the training which the aircrew receives before he obtains his Commercial Pilot's licence. His efficiency as a pilot has, however, to be maintained at every stage. We have dealt with this important subject in our Chapter on Operational Efficiency. Apart from the statutory obligation of passing annually the test for Instrument Rating, the procedure adopted in the United Kingdom for the maintenance of operational efficiency is fundamentally different from the one adopted in India. While the regulations made by the Ministry of Civil Aviation in the United Kingdom place an obligation on the aircraft operator to introduce an appropriate system of checking to ensure that a safe standard of operation is maintained, the Indian Aircraft Rules lay down certain statutory obligations for that purpose. The Ministry of Civil Aviation does not approve the Check Pilots employed by the operator for ensuring a safe standard of operation, nor does the Ministry itself employ Check Pilots to achieve that object. Under the existing Indian Aircraft Rules, not only has the Check Pilot to be employed by the operator to be approved by the D.G.C.A. but the D.G.C.A. has recently claimed the power to appoint his own pilots for carrying on the statutory checks. It has also to be remembered in this connection that the A.T.L.B., before granting a licence to an

airline, satisfies itself that the operator will employ technical personnel in adequate numbers with appropriate licences and with other qualifications and experience for safe operation as related to the service proposed, the route to be traversed, the aircraft to be used, and the operation and maintenance procedure to be adopted. The continued maintenance of the operational efficiency of the aircrew is, therefore, the responsibility of the A.T.L.B. and not that of the D.G.C.A. Moreover, existing periodic checks would be unnecessary under the new rules proposed by us. Reference to this has been made in para. 159 of Chapter V. We have laid down in that Chapter our proposals for refresher training and indicated the nature and extent of the responsibility of the operator for ensuring the operational efficiency of the aircrew employed by him. It is not for us to say what work the A.T.L.B. will have to perform under the proposed merger of the internal and international airlines of India into one single Corporation. The question of issuing a licence to an airline in the future to operate on a scheduled service is not likely to arise. We consider, therefore, quite essential that it should be left to the Civil Air Board to ensure that the obligation for maintaining operational efficiency laid on the operator is duly carried out by him. The Ministry of Civil Aviation carries out this duty by periodic inspection visits to operators. During such visits the Ministry exercises its supervisory control by seeing, through examination of the records, that an operator has complied with the requirements of the regulations. Should it appear that the requirements were not being complied with, the action would be to advise the operator of the shortcomings of his system and to ensure that these are put right. If administrative enforcement in this way proved ineffective, legal proceedings could be taken against the operator by the Ministry, under the Air Navigation Order, 1949. It was brought to the notice of the Chairman by the Ministry of Civil Aviation, during his recent visit to London, that administrative supervision may take the form of a personal observation by a M.C.A. officer, of a check flight conducted by an operator. The function of the M.C.A. observer in such a case, however, is solely to observe the manner and conduct of the scope of the check and not to usurp the functions of the operator's check pilot. In recent months, the D.G.C.A. has claimed that not only will his Inspector of Flying put the pilots of the airlines through statutory checks, but he has also claimed that his Inspector of Flying will have the right to put the pilot of the company to a fresh check although the Check Pilot of the company may have passed him successfully through the test for pilot-in-command certificate. We have already pointed out in a previous Chapter that such a pilot-in-command check will not be necessary in the future because it will form part of the rules that we have proposed. We have also recommended that the existing statutory checks should be done away with. In place of such checks we have imposed the obligation on the operator to see that the standard of the operational efficiency of his aircrew is maintained and that he provides also refresher training as recommended by us. We therefore, recommended that it shall be the responsibility of the operator to ensure the operational efficiency of the aircrew employed by him and that it shall not be within the power or competence of the D.G.C.A. to lay down a procedure for that purpose and to apply tests to see that action is taken in accordance with that procedure. We further recommend that the Civil Air Board should have powers similar to those enjoyed by the Ministry of Civil Aviation in the United Kingdom for exercising supervisory control to satisfy itself that the operator has complied with the task entrusted to him, of promoting and maintaining operational efficiency of his aircrew.

275. **Further justification for Civil Air Board.**—There are various other important considerations which justify the creation of a statutory Civil Air Board, in India. It is true that in theory the Ministry of Communications is at present responsible for all matters pertaining to Civil Aviation in this country, including safety of air operations. In practice it is the Director General of Civil Aviation who makes recommendations to the Ministry in all matters of policy and the enactment of legislation or framing of rules for that purpose. It is again the D.G.C.A. who has to enforce the provisions of the Act and to see that the Rules made thereunder are duly implemented. He, therefore, practically combines in himself the judicial power with executive authority. In case of the breach of any provisions of the Act or the Rules made thereunder, he acts both as the Prosecutor and Judge and no appeal lies against his decision. Further, in certain cases like the investigation accidents, he has to sit in judgment over the acts of his own administration. The Chief Inspector of Accidents in the U.K. is responsible not to the Ministry but to the Minister himself. He has not to review the acts of his own administration. He conducts an independent inquiry. Even when the Minister, on receiving the report of the Chief Inspector, decides to appoint a Committee of Inquiry, it will be the Lord Chancellor who will nominate the members of such a Committee. Moreover, it is very undesirable from the public point of view that in the rapidly growing and highly technical civil aviation industry, the Minister would have to depend upon the advice of one single individual in the formulation of his civil aviation policy. The fact that the Ministry was not, however, satisfied with the existing situation and that it considered it a matter of importance to receive the advice and guidance of a body of competent men in matters of civil aviation policy is evidenced from the functions of the Scientific Advisory Committee which the Ministry appointed in 1950. The functions of that Committee were to give the Ministry advice on:

(i) matters relating to civil aviation which might be referred to it by the Government; and

(ii) matters being of a technical or scientific character which, in the view of the Committee were fit for study, research or advice by a body of technical experts on civil aviation.

It is, however, remarkable that although it is nearly two years since the Committee was appointed, not a single meeting of the same has yet been called. Moreover, we should not forget that the modern tendency of the Indian Union has been to seek the advice and guidance of the representatives of the interests concerned in evolving and framing of the policy of any vital industry in the country. For instance, the Transport Ministry does not depend only on the views of the Director General of Shipping for the framing of the shipping policy, but it also seeks the guidance and advice of the representatives of the interests concerned before that policy is framed. The principle of separating the judicial from the executive authority and the machinery laying down the principles and policy from the body that enforces and executes them has been clearly recognised in the U.S.A. There are two controlling bodies in that country. They are the Civil Aeronautics Board and the Civil Aeronautics Administration. The C.A.B. broadly controls the air transport policy and lays down the standards and regulations of safety. The C.A.A. is the executive body which administers the safety regulations which are made by the C.A.B. These facts justify the creation of a Civil Air Board, which may be entrusted, among the other matters with the task of framing policy and advising the Minister in connection with the training of aircrews and institutions which train them, and the maintenance and promotion of the operational efficiency of the pilots, and in regard to matters of national air policy which may affect the number of Commercial pilots that it may be required for the air transport industry.

276. **Supervision and control of Civil Air Board over flying clubs**—Although the D.G.C.A. enjoys large powers of control over the activities of Flying Clubs, the unfortunate impression that we have formed, as the result of the evidence that has been given before us and the visits which we have paid to the Flying Clubs, is that there is not only lack of understanding and appreciation of each other's difficulties between the D.G.C.A. and the Flying Clubs, but there is also the absence of that cordiality and harmony between them which are essential for the success of training institutions. The Flying Clubs unfortunately do not believe that the D.G.C.A. has been acting in their best interests. The D.G.C.A. on the contrary feels that the Clubs are not conducting their affairs properly which defeats the object with which they have been subsidised. Human institutions like human relations, cannot be successfully conducted by the authority of merely pure cold logic. They require tact, patience, intelligent understanding, imagination, vision and last but not least, that flow of human touch and human sympathy, which alone can bring success in an erring world. We have already indicated our approach towards a solution of this problem in paragraphs 81—85 of Chapter II. We consider the matter of such importance that we would like to repeat what we have said therein:

> "Whatever may have been the justification in the past for investing the D.G.C.A. with the wide powers which he enjoys in directing the affairs of the Club, the Committee is convinced that if the leading public men connected with the Club are to be induced to wield their influence and give their guidance and advice in managing the affairs of the Club and to put them on economic and efficient footing of modern concept, power should be left in their hands without any interference or dictation from outside. We are aware of the fact that the Central and the State Governments would like to be satisfied that the large amount of subsidies which they give to the Clubs are properly and economically utilised. The way to achieve that end is not to invest wide powers in the hands of a single individual. The Managing Committee of the Clubs should be given fullest opportunities and power to act as a responsible body."

277. We would not, therefore, like normally to have any interference with the activities of the Clubs. We must however, recognise the right of the Government to ensure that the best use is made of the subsidies which they give and that the highest standard of civil flying are maintained. It will be for the Civil Air Board to exercise the supervision and the Control that may be necessary for achieving that common object. This is another vital consideration which, in our opinion, fully justifies the bringing into existence of the Civil Air Board.

278. **Composition and functions of the Civil Air Board.**—We do not want a number of statutory bodies in the field of civil aviation. We are aware that the A.T.L.B. as a statutory body, exists today in the field of civil aviation. We do not know what part it will have to play when all the internal and the international airlines are merged into one Corporation. We recognise that it is not within our Terms of Reference to deal with the future of the A.T.L.B. It is, however, competent to us to offer our recommendations in regard to those powers of that body which affect the training and operational efficiency of the pilots. We have already done this in previous paragraphs and in previous Chapters. The Scientific Advisory Committee is a defunct Committee. It is practically still-born. For reasons which we have set forth in the above paragraphs we consider it essential that a Civil Air Board should be constituted as a statutory body. We, therefore, recommend that a Civil Air Board should be constituted as a statutory body. The Board shall consist of the following members:—

(1) A non-official Chairman of standing in public life and preferably with knowledge and experience of educational activities in the country.

(2) A representative of the Air Headquarters.

(3) The Director General of Civil Aviation or his representative.

(4) Two representatives of the Air Transport Association or two representatives of the new Air Corporation when it is formed, one of whom shall be a man possessing knowledge and experience of technical subjects.

(5) A pilot of outstanding ability and experience.

(6) A representative of the flying clubs.

(7) A Member of Parliament.

The Chairman shall be a full time member of the Board. The Board shall have the services of a full time Secretary who should have 5 to 7 years' experience of the air transport industry in general and the training problems of aircrew personnel in particular. The Board shall be directly responsible to the Minister. The Board shall hold a meeting once a month or more often as necessary.

279. The functions of the Civil Air Board shall be as follows:—

(1) To select candidates for admission to the Flying School of the C.A.T.C. for training as Commercial Pilots.

(2) To lay down the details of curriculum and training to be imparted at the Flying School of the C.A.T.C. and the Flying Clubs.

(3) To take all steps for the maintenance of proper standards of instruction, training and discipline of the Flying school and the Flying Clubs.

(4) To exercise supervision and control for ensuring the best use of the financial assistance given to the Clubs.

(5) To select examiners for the examinations to be conducted for the granting of the different categories of licence to pilots.

(6) To satisfy that the operator takes all necessary steps for maintaining the operational efficiency of the pilots and aircrew at the highest level.

(7) To take all possible steps for fostering and encouraging love for sport flying and developing the air-mindedness in the country.

(8) To consider all questions affecting the national civil air policy.

(9) To tender advice to the Minister in regard to any or all matters referred to in (1) to (8) above, as well as on any other subject which may be referred to it by the Minister.

CHAPTER XIII

MISCELLANEOUS MATTERS

280. **Standardisation of scales of pay of Pilots, Check Pilots and Conversion Course Instructors.**—We have been asked to examine the question of the standardisation of scales of pay of different grades of pilots, check pilots, and conversion course instructors. We have gone into this question and have obtained particulars in regard to the total amount of wages which are paid by different airlines to the different categories of pilots employed by them. It is some of the pilots of the company who are entrusted with the duties of acting as its check pilots. It is some of the pilots of the company who are entrusted with the work of giving conversion course instruction. The evidence that is placed before us does not disclose any general desire for the standardisation of these scales of pay. Moreover, the modern tendency is to lay down the minimum scales of wages and not to fix the maximum scales. For instance, the National Maritime Board of the United Kingdom lays down the minimum standard of wages of the officers, engineers and ratings in the Shipping industry. They do not fix the maximum scales. A large number of shipping companies, however, pay their officers a higher scale of wages than that fixed by the National Maritime Board. The wages to be paid to a pilot will depend upon several considerations. The qualifications which he possesses, the competence and efficiency which he shows, and the service which he will have to operate, would be the factors which will influence his employer to determine the scale of wages that should be paid to him. We do not think that there is, therefore, any necessity to fix the standard scales of pay, which would mean that not only will there be a uniformity in the scales of wages but it would also mean that that should be the highest scale according to which wages should be paid to the different categories of

pilots in the air transport industry. With the constitution of a single Airline Corporation in this country in the near future, it will be possible for the Corporation to lay down a scale of wages which would be applicable to all their pilots. The question, therefore, loses its practical importance. But, apart from those considerations, we have come to the conclusion that it is not necessary to lay down standard scales of pay for different grades of pilots, check pilots and conversion course instructors, and we, therefore, recommend that no such standards should be laid down. As we have already stated, the modern trend of thought is to fix the minimum scales of wages, and if it is decided to lay down such minimum scales of wages, we are inclined to think that that would be a step in the right direction.

281. **Qualifications for Check Pilots and Instructors for Conversion Courses, and their periodical checks.**—Under the existing rules made under the Indian Aircraft Act, an airline company cannot appoint a Check Pilot unless he is approved by the D.G.C.A. As we have proposed to do away with the statutory checks which are laid down in Schedule VIII and have proposed the imposition of certain definite obligations on the operator to ensure the operational efficiency of the pilots engaged by him, it will be for the operator to decide who his Check Pilot should be. So far as Pilot-in-Command Certificate is concerned, the test will not have to be carried out in future for that purpose by the Check Pilots of the airlines. These tests will have to be carried out in accordance with the new provisions which we have recommended and which will have to be incorporated in the country's legislation. The same applies to the Instrument Rating.

282. We, however, consider that a Check Pilot should be a man of wide experience, having at least 3,000 hours of command on a type which he is asked to check. He should possess a high sense of responsibility and he should be a man of tact and judgment. He must be able to assess faults in flying.

283. As regards the Conversion Course Instructor; we are of the opinion that nobody who has not got wide experience, of at least 8,000 hours of command of the type on which he is to instruct, should be allowed to give instruction as a Conversion Instructor.

284. **Liability of airline pilots to serve under the State.**—We have been asked to examine whether the airline pilots should be under liability to serve the State, if required to do so. Since the appointment of our Committee, the House of the People has passed a Bill for the constitution and regulation of certain Air Force Reserves and also an Auxiliary Air Force and for matters connected therewith. That Bill is now the law of the land. Under that law, the Central Government may raise and maintain an Air Defence Reserve. Every citizen of India, who holds or has held a public transport pilot's licence ('B' licence) issued under the Indian Aircraft Rules, 1937, and who has not attained the age of 37 years, is liable to be called up for service in the Air Defence Reserve. As that is now the law of the land, the question of our examining the problem of liability of airline pilots to serve under the State does not arise. We may, however, add that no such liability to serve the State is imposed upon the airline pilots of the United Kingdom. Their liability to render such service to the State in that country, however, arises out of the

fact that they have to undergo what is called 'national service'. As national service is to be undertaken in the larger interests of the country. We do not think we can tell our Government, in the absence of the inauguration of such national service in India that they should not have the power to impose through another Act the liability on airline pilots to be called up for the defence of the country.

285. So far as the position of the private pilots is concerned, there was no obligation on their part, at the time the Committee was appointed, to serve the State under certain emergencies. We are advised by the D.G.C.A. that no change should be made in their position in that connection. There is no obligation in other countries on private pilots to serve the State. No reserve liability is imposed on the cadets of the National Cadet Corps to serve the State. No liability is also imposed on the cadets of the Air Training Corps in the United Kingdom, who are given their flying training at the cost of the State, to serve the State. We, however, find that under the new Act, to which reference is made above, a person holding a private pilot's licence will be called upon by the State to serve in the Air Defence Reserve of the country if he has had not less than 200 hours experience of solo flying, including not less than 30 landings and provided he has not attained the age of 37 years. Everyone, however, has to obey the law of the land. We, however, wonder whether the imposition of such obligations on sport flying will conduce to its development and to the spreading of airmindedness which the Government are anxious to foster and promote in India.

286. **The Aero Club of India.**—The Aero Club of India was founded in 1928. Four Flying Clubs were in existence at that time—Karachi, Delhi, Bombay, and Bengal. They were affiliated to the Aero Club. The Aero Club continued to function effectively till the outbreak of war in 1939. Its main activities during the pre-war period were to further the interests of the Flying Clubs and to secure for them a subsidy agreement from the Government. The Aero Club also conducted four Air Rallies during the pre-war period and we understand that they were very popular. With the outbreak of the World War II, the Aero Club had to suspend its activities. With the cessation of hostilities in 1946, the Club, however, revived them. During the post-War period, the Club conducted two Air Rallies, one at Calcutta in 1950, and the other at Cawnpore in 1951. The Aero Club was receiving a subsidy of Rs. 25,000 a year from the Central Government, till last year. The Government, however, are anxious to understand, so we are told, how far the Club has been useful or successful in developing the cause of civil aviation in the country before they would agree to continue its grants in the future. The objects of the Club are as follows:—

(i) to encourage and develop the study of, and to provide a centre of information and advice on, all matters pertaining to aeronautics;

(ii) to provide an all-India authority on and to organise all competitions, sporting events and trials in connection with aeronautics in India and to act as the representative of, and channel of liaison with aeronautical organisations;

(iii) to be the co-ordinating and representative body of the various flying clubs in India;

(iv) to provide facilities for private owners of aircraft visiting India from abroad or visiting other countries from India;

(v) generally to do all such things as are incidental or conducive to the attainment of the above objects or any of them or which may conveniently be done along with or as subsidiary in the said object.

It will be noted from the objects of the Club set forth above that the Aero Club of India aspires to play the same role in this country as the Association of British Aero Clubs and Centres has been playing in the United Kingdom.

287. **The Aero Club in India—The Aero Club in Great Britain.**—Forty-four Flying Clubs are, however, Members and twenty-four Flying Clubs are Associate Members of the Association of British Aero Clubs today. The Aero Club in India, however, has not been successful in enlisting the membership even of the minority flying clubs in this country. The office of the Association of British Aero Clubs at the Londonderry House in London, is a very live and active centre of information and usefulness. That cannot be said of the Aero Club of India. It may not be its own fault because it has not got the necessary funds to set up a proper office for achieving its objects. The fact, however, remains that the existing office provide little or no attraction for people interested in civil aviation to visit it. The Association of British Aero Clubs has been of considerable service to the British Flying Clubs during recent years. It was the persistent campaign of the Association of British Aero Clubs which secured substantial financial assistance for the Flying Clubs of Great Britain from the British Government by means of A.T.C. Training contracts. The Association realises that civil aviation is becoming an increasingly important part of the national life and it is, therefore, anxious to bring it within the reach of a wider public. With a view to achieve that object, it secured another concession for the British Flying Clubs by promoting recreational flying through Firms' Sports Clubs. The basis of this scheme is that employers' contributions made for the purpose of recreational flying should be exempt from British Income Tax. There is no achievement of this nature for the Aero Club of India which one can record. It is surprising that with a galaxy of distinguished persons associated with the Aero Club as their members or forming part of their management, the Club has not been able to secure substantial financial help for enabling it to achieve the objects for which it is founded.

288. **What the Aero Club needs.**—We are, however, obliged to its Vice-President for explaining to us in a very frank manner the difficulties with which the Aero Club has to contend. Pandit Kunzru told the Committee that as a first step, it should be helped with adequate funds and should be given a free grant of land. This will enable the Club to have its own office with qualified and adequate staff, an ante-room, a reference library, and residential accommodation for five to ten visiting members. Normally speaking, "deserve

before you desire" is a maxim for success in life which both the individual and the institution can follow with advantage for the realization of its ideals. There are, however, some causes of national importance where finance has to precede before action is taken. We have not imposed any responsibility on the Aero Club of India of the type which the Association of British Aero Clubs enjoyed in the United Kingdom. We realize that such a responsibility cannot be discharged without competent men and adequate finance. We can, therefore, only express the hope that, with the distinguished men connected with the working of the Aero Club of India, they would be able to convince the Government that they are capable of fulfilling the ideals which the Club has set before itself and will be able to do so if the necessary financial assistance is given to them, for that purpose. We, however, recommend that the free grant of land and the financial assistance which the Aero Club has asked for to enable it to have its own office with qualified and adequate staff, an ante-room, a reference library, and residential accommodation for five to ten visiting members should be given to it to enable it to achieve its object.

289. **Training for special types of aircraft and special types of work.**—We are asked to examine the question of training for special types of aircraft and special types of work such as Helicopters, aerial survey and spraying of chemicals. The use to which Helicopters can be and are being put to are many and varied. A few of the well-known uses are as follows.

290. Air-Sea rescue, crop-dusting, mail carriage to small areas, carriage of mail, freight and passengers to mountainous and otherwise inaccessible places. Helicopters have not been used in India up to now, but the time may come soon when such aircraft are imported not only for Air and Military Force use but also for commercial purposes. In these circumstances, although no immediate necessity for Pilot training on Helicopters appears to be necessary, some considerations should be given to the matter. A Helicopter, even of the smallest carrying capacity,, is comparatively speaking both expensive to buy and to maintain. It would be, therefore, not a very economical proposition to keep an aircraft of this type at the C.A.T.C. solely for the purpose of training. It may be presumed that any Air Company or Commercial Firm which might import such an aircraft will, at the same time, send personnel to the manufacturers for training in the maintenance and flying of the type of aircraft imported. If and when any aircraft of the type is to be imported, it will be useful, therefore, to select personnel of the Aeronautical Inspection Department and send them to the country of manufacture for a course of training in the maintenance and inspection of the aircraft concerned. That will also be the time to consider what facilities, if any, should be provided at the C.A.T.C. for pilot training on Helicopters.

291. **Crop-dusting and aerial spraying.**—We are informed that the Ministry of Agriculture of the Government of India as well as some of the State Governments are greatly interested in the work of crop dusting and aerial spraying of chemicals. It is a specialised job and, therefore, needs special training. Some work was, we understand, done in this connection by a few American pilots in connection with locust control in Rajasthan under the Technical Assistance Scheme.

One of the Senior pilots of the C.A.T.C. was trained by the American pilots for this work. He in his turn, recently trained successfully two of the pilots holding 'B' licence. The control of pests, the destruction of locust, the removal of malaria menace are matters of vital importance both for agriculture and health. We, therefore, recommend that the Flying Instructors of the Flying Clubs should be given training as pilots for the purpose of crop dusting, aerial spraying, etc., either under the American pilots who are working at present in the country or under such pilots who have been trained by them for that purpose. When a scheme for crop dusting and aerial spraying is duly organized, pilots trained in this work would be necessary. We, therefore, recommend that the required training for that purpose may be given at the Flying Clubs, and preference for such training may be given to the existing unemployed 'B' licence pilots.

292. **Training for Aerial Survey.**—Our colleague, Group Captain Chatterjee, has pointed out to us that the aerial survey work will be done by the Air Force in the near future. The Committee, therefore, is not inclined to go further into this question and recommend any special training facilities for this type of work. If, however, in future, it is necessary to train pilots on the civil side for survey work, we recommend that the Air Force should provide the necessary facilities for that purpose.

CHAPTER XIV

DEVELOPMENT OF GLIDING IN INDIA

293. **How gliding develops air-mindedness.**—We have been asked to examine how Gliding can encourage air-mindedness amongst the youth of the country. It is difficult to define what air-mindedness is. A passenger flying in an aeroplane cultivates as much air-mindedness as a passenger sailing in a ship develops sea-consciousness. That is not, we believe, the type of air-mindedness which the Government have in view. Just as a Captain controls a ship from the bridge, so a Pilot handles the aircraft from its cock-pit. The one cultivates the sense of the sea. The other cultivates the sense of the air. That is the type of air-mindedness which it is desirable to foster and useful to develop. When a man sails in a sailing boat, he begins to understand the action of the currents, the force of the winds, and the mysteries of the waves. Similarly, a man who glides begins to study the direction of the winds, the currents of the clouds, and the effect of thermal activities. No sailor can sail his boat without knowing fully how the winds and the waves will affect his movement. So also no Glider pilot can soar in the air without knowing how the direction of the winds and the currents of the clouds will affect him in the Air. Both sailing and gliding develop, therefore, one's sense of self reliance, cultivates one's presence of mind, and teach one to obtain mastery over his nerves. Just as his sailing experience enables the Captain to obtain greater mastery over his ship, so also his gliding experience enables the Pilot to develop greater mastery in the handling of his aircraft. Gliding, therefore, no doubt, plays an important part in the development of air-mindedness. As remarked by the well-known glider Mrs. A. Douglas

"Soaring has its own sphere of development quite apart from other modes of flying, with its own problems for the Scientist and Technician, and its own satisfactions for the adventurous. The cloud current, the heat turbulance, high wind, and mountain over-falls, which the aeroplane pilot finds so unpleasant or even dangerous, are regarded by the sail-plane pilot as friends, not as enemies. He does not fight against the forces of nature; he uses them for his own ends." This beautifully sums up in few words the philosophy of gliding.

294. We, therefore, feel that gliding will provide a very pleasant and profitable media for developing air-mindedness amongst the youth of the country. Gliding is considered as the simplest form of aviation. It can be picked up by boys of very young age. It is regarded as the safest form of flying. Its accident factor is perhaps the lowest. Gliding can provide flying training to a large number of young men at a very cheap cost in a comparatively short time. Moreover, as there is no complicated machinery in gliders, maintenance of gliders does not present any major problems of establishment or workshop. It lays the surest foundation of the principles of flight and develops the basic understanding of the atmosphere since gliding primarily depends for its movement on air and air currents. A glider pilot experiences a thrill in the air which possibly a power pilot does not experience in his plane. Gliding fosters the spirit of adventure, develops an exploratory outlook and teaches the beauties of teamwork. We would, therefore, like our young boys and girls to go in for this sport.

295. In all advanced countries, gliding is actively encouraged, particularly amongst its young men and women. Countries such as Russia, Yugoslavia, Poland, Hungary, Rumania and Argentina, give training in gliding free of cost. Germany spent millions of Marks before the War to train her pilots in gliding. There is a large number of gliding clubs in England and on the Continent. Experience has shown that glider training is a valuable adjunct to pilot training. It has also been found useful for eliminating candidates who have no aptitude for flying. India has been found as a very suitable country both for gliding and soaring. It is, therefore, possible to develop gliding in almost all parts of India.

296. **Indian Gliding Association starts gliding movement in India.** —The first practical step to organise gliding in India was taken in 1931, when 41 enthusiasts formed the Indian Gliding Association at Bombay. The venture was entirely private. The gliding instructions and activities were carried on at Aundh and Shri Kabali was the first instructor. The Ruler of Aundh placed an aerodrome and a hangar at the disposal of the Indian Gliding Association and also provided accommodation for its members. Ten members qualified for elementary gliding licences in the first year. Financial troubles soon followed. There was no State aid and though approach was made to the then Government, no help was forthcoming. With the economic depression of 1931, all schemes for further development had to be abondoned. In 1940, in the second year of the War, the Government of India felt that it would be an advantage to train 300 glider pilots. They entered into negotiations with the Indian Gliding Asociation which at that time possessed 7 gliders besides two

under construction, with one instructor. In 1941, a capital grant of Rs. 37,000 and an annual grant of Rs. 20,000 besides a bonus of of Rs. 250 for each pilot trained upto a maximum of 80 pilots a year, was sanctioned. The grant was subject to an agreement between the Government of India and the Association whereby the administration and organization of the Association were to be controlled by Government. Meanwhile, the Air Headquarters, India had decided to organise their training themselves. The proposal, therefore, fell through though the Association received Rs. 24,600 as capital expenditure and Rs. 10,000 as recurring expenditure to compensate them for the commitments they had already incurred. The Indian Gliding Association has been receiving grants from the Government of India since 1948. The total amount of grants sanctioned upto 1950-51 was Rs. 1·96 lakhs. The Association possesses a first class exclusive gliderdrome near Poona. When it was opened in February 1951, our Prime Minister stressed the need for and the proper place of Glider Pilots in India. It aims at training 80 glider pilots per year upto the 'C' Certificate. According to the figures given to us by the D.G.C.A., the Association has trained 26 trainees for 'A' and 'B' Certificates, 21 trainees for 'C' Certificate, 12 trainees for 'CC' Certificate and 3 glider pilot instructors. Shri. Irani, the Chief Instructor of the Association, was sent abroad to purchase new gliders and also to undergo a refresher course to be up-to-date in the latest method of gliding. The Association has not been able to meet its expenditure from the Government grants. A request for enhanced subsidy is, we are told, at present under the examination of the Government.

297. The Poona Gliding School has been giving training at present to the pupils of the Military Engineering School on the gliderdrome of that School. It has, therefore, not been possible for that Gliding School to carry on its normal activities for its own pupils on its own gliderdrome. We understand that that is a temporary arrangement, and it is expected that, with the sanctioning of proper help from the Centre, the School will be able to revive its full normal activities on its own aerodrome.

298. **The Delhi Gliding Club.**—A Gliding Club was started in Delhi in October 1950. It is an organisation run by volunteers and all office-bearers are honorary. The activities of the club have thus been confined to Sundays only, when the Instructors can find time to provide training. We understand that the activities now have been spread over to Wednesday and Saturday afternoons also. The Club does not possess an exclusive field and is situated at Safdarjung airport. The gliders are launched by aero-tow provided by the Delhi Flying Club. This Club was given a subsidy of Rs. 20,000 in 1950-51 and Rs. 30,000 in 1951-52 for capital expenditure. A grant of Rs. 10,000 was also given towards its recurring expenditure for 1951-52. The estimated expenditure of subsidies to the Gliding Clubs in India during 1951-52 was Rs. 90,000 and it is put at Rs. 60,000 during 1952-53. What the Club badly needs today, we are told, is a full-time instructor and towing facilities. These are necessary for developing its gliding activities and meeting the demands of Delhi for the same. There are no other institutions in India where training in gliding is given at present. We would like here to record our thanks to the organisers, both of the Poona and the Delhi Gliding Clubs, for the very

interesting demonstrations which they gave in gliding during our visit to those Clubs.

299. **General desire for developing gliding--Responsibility for developing it.**—The Chief Minister of Uttar Pradesh has observed in his letter to the Chairman that "the Hind Provincial Flying Club is keenly interested in encouraging gliding at its branches and has, in fact, included this item in its budget for the current financial year. But on account of lack of funds it may not be able to introduce it this year or even in the near future, unless it curtails its activities in regard to the training of pilots, or receives a considerable grant from the Government of India. The State Government is naturally interested in development of gliding in the State as a simple means for encouraging air-mindedness and also for providing healthy amusement in an economic way." The Madras Government has informed the Committee that "in the present condition it is not possible for the State Government to contemplate any assistance to gliding activities. The initiative in this regard should come from the Central Government and it is only after the Central Government announces its plans in the matter that the State Government can say what, if at all, it can do." It will, therefore, be realised that there is a general desire in the country that gliding amongst its youth should be developed on a national basis. Two clubs, one at Poona and the other at Delhi, cannot, achieve this object. Experience of the training given to the Air Squadrons of the National Cadet Corps supports the view that the best and practical way of developing gliding activities in the country would be to encourage the Universities to establish their gliding clubs for providing opportunities to the students of colleges under their control for gliding and soaring. The vital question is, who will provide the funds which would be necessary for starting and developing gliding activities in the country. The Central Government is giving some financial help in this direction. The amount provided in the budget for 1952-53 for this purpose is only Rs. 60,000. It will be appreciated that even the existing two clubs cannot maintain their normal activities with such a small grant, not to say anything about the funds needed for developing gliding in the country. As gliding will provide a pleasant and thrilling sport for the youth of the country, and as it will also develop the air-mindedness of the people, we are of the opinion that the finance necessary for developing gliding activities in the country should be met both by the Central Government as well as the States. An independent India naturally desires to provide for the best modern sports and the best training activities for the youth of the country. Aspirations and ideals cannot, however, be fulfilled without finance esential for their realisation. As the Government of India are anxious to encourage the development of air mindedness in the youth of the country and as the States generally support this desire, we have no doubt the Centre and the States, between themselves, would be able to evolve a satisfactory arrangement for financial help which would not only put gliding on its footing in the country, but which could also ensure its development on efficient and progressive lines.

300. **Progressive formation of Gliding Clubs by Universities.**—Development of gliding will necessarily have to be done in stages. Instructors required for the purpose will have to be trained. All of

them cannot be trained in a year's time. We have remarked above that every university in the country should have its own gliding club. There are 30 Universities in India today. Thirty gliding clubs would, therefore, have to be established, equipped and organised. From the statement given at the end of this Chapter, it will be noted that the minimum amount necessary for the equipment of the gliding club with gliders, hangars, winch, station wagon, jeep, etc., will be about Rs. 2,25,000. This will be non-recurring expenditure. From another statement given at the end of the Chapter it will be observed that the total working cost of a gliding club, capable of training 200 glider pilots per year upto their 'CC' Certificates, will come to about Rs. 70,000. Our first proposal, therefore, is that the gliding clubs at Poona and Delhi should be put on a sound economic footing and that 3 new clubs should be established from 1954-55 at Calcutta, Madras and Lucknow. Our suggestion is, that arrangements should be made for the Delhi and the Bombay universities to take over the Gliding Clubs at Delhi and at Poona. Similarly, the 3 new clubs should be started under the auspices of their respective universities at Madras, Calcutta and Lucknow. Just as training is given to the cadets of the N.C.C. free of cost, similarly training in gliding should also be given free of cost to the students of the universities. As stated above, the amount necessary for these activities should be financed jointly by the Centre and the State Governments. As regards the capital cost, it should be financed by the Centre. As regards the recurring cost, it should be shared between the Centre and the States. The results of the 5 Gliding Clubs should be carefully watched and in the light of experience gained, 4 new gliding clubs should be established, year after year, at the other university centres in the country.

301. **Needs of a Gliding Club.**—It is essential that the Gliding Club should have its own glider-drome. It should be a field away from the usual traffic of the aeroplanes. The minimum size of the glider-drome should be about 900 yards in length with 500 yards in width. The longer stretch should be in the direction of the prevailing winds. An approach road to the glider-drome should be provided by the State in which the university is located. It should be easily accessible to the students from their usual centre of study. As regards the equipment of the gliding club and the details of its operating cost, we have to state that they are given at the end of this Chapter. Provision has been made for 2 paid Instructors in the estimate of cost. With the development of the gliding activities, it may be possible for the university to find one or more honorary instructors from amongst those who may have been trained by the club. They may assist as Assistant Instructors to help further gliding activities of the club.

302. **Management of Gliding Clubs.**—As regards the management of the club, a Committee should be appointed by the university for that purpose. A representative of the college students should find a place on that Committee. Both the Central and the State Governments financing the activities of the club should have the right to nominate one representative each on the committee of management. We have, no doubt, that a Committee thus constituted will be able to ensure the functioning of the club on efficient, economic and modern lines.

303. **Financial implications of our proposals—Numbers that can be trained.**—When the gliding clubs at all the university centres have been established, as proposed by us, we estimate that the amount of capital expenditure incurred for that purpose would come to Rs. 67,50,000. The total recurring expenditure would come to Rs. 21,00,000 per year. These 30 gliding clubs would be able to train about 6,000 glider pilots per annum up to 'CC' Certificate. This means that the students undergoing training will be able both to glide as well as to soar. Such training will create a great potential source for the development of qualifications needed for power flying. It may be interesting to add that a country like the United Kingdom, having less than 1/7th of the population of India, has got today 31 gliding clubs. Our proposal, therefore, to organise and equip 30 gliding clubs all throughout India, during the period of next 7 years, should not be considered as unduly ambitious but it should be regarded as fair, modest and practical.

304. **Manufacture of Gliders in India.**—It has been the recognised national policy of an independent country that it should become self-sufficient as far as possible in the matter of the vehicles and the machinery needed for its transport. India has, therefore, made a modest beginning for building its own ships, constructing its own locomotives and wagons, manufacturing its own motor cars and trucks, and producing its own trainer aircraft. With the development of the gliding activities in the country, India should be able to build its own gliders. We may mention here that gliders of the Primary and the Intermediary types have been developed and manufactured in the Research and Development Section of the Civil Aviation Department. We were given an opportunity to see how these gliders were built in that Section. We were considerably impressed with the potentialities of development in this direction. The Madras Institute of Technology is also building a Primary. Further, we understand that the Research and Development Section has also initiated a programme for the construction of a high performance sailplane. We are told by Dr. Nilakantan, Deputy Director, Research and Development Section, that the cost of production will depend on the number of Primaries and Intermediaries that are to be constructed. If the gliders are manufactured in units of twelve, it would be possible to sell Intermediaries for Rs. 8,000 each, and the Primaries for Rs. 5,000 each. The imported cost for these gliders would work out at about Rs. 10,500 for the Intermediary and Rs. 6,500 for the Primary. If a proper centre is, therefore, organised for the manufacture of gliders, it can, with the guidance and advice of the Research and Development Section of the Civil Aviation Department, produce Primaries and Intermediaries at a rate cheaper than the one which may have to be paid for the imported machines. The manufacture of Primaries, Intermediaries and later on of Sailplanes will make its own contribution to the acquisition of practical experience and technical 'know how' which would be of great help in the development of the aeronautical manufacturing industry in this country. We are, therefore, of the opinion that the manufacture of gliders in India should proceed side by side with the development of the gliding activities in the country.

305. **Recommendations.**—We have, therefore, to make the following recommendations:

(i) As gliding will promote airmindedness amongst the youth of the country, both the Central and the State Governments should develop the gliding activities in India.

(ii) The existing gliding clubs at Poona and Delhi should be given the financial help which they need for enabling them to put their activities on an economic and efficient footing.

(iii) Gliding Clubs should be started under the auspices of all the Universities in the country and the students of the Colleges should be given training in gliding free of cost. Three such Gliding Clubs should be started in 1954-55 at Madras, Calcutta and Lucknow. Gliding Clubs at other University centres should be started year after year in the light of the experience gained of the working of the two Clubs that exist today and the three Clubs that have been proposed to be started in 1954-55.

(iv) The capital expenditure for the Gliding Clubs should be financed by the Centre. The recurring expenditure of the Gliding Clubs should be shared between the Centre and the State in which the Gliding Club is located.

(v) Instructors for gliding should be trained at the Gliding Club at Poona.

(vi) The manufacture of gliders should be encouraged side by side with the development of the gliding activities in the country.

(vii) The Gliding Club should have a separate and exclusive gliderdrome for its gliding activities.

GLIDING CLUB

EQUIPMENT COST

		Rs.
1.	One Two seater	14,000
2.	Two Intermediate Gliders	17,000
3.	Two Sailplanes	27,000
4.	One Primary	4,500
5.	One Winch	10.000
6.	One Spare motor for winch	3,000
7.	One station wagon	17,000
8.	Hangar 80' x 100 (cost to be added) with attached workshop & Club House	1,00,000
9.	Workshop Tools and Equipment including circular saw with petrol motor	5,000
10.	One trailer for retriving from cross country	1,500
11.	Water & Sanitary arrangement	3,000
12.	Hutments for skilled labourers & Chowkidars	15,000
13.	One Jeep or old car to pull cable from winch	8,000
	Total	2,25,000

OPERATIONAL COST

	Per Year Rs.
1. One Instructor @ Rs. 700	8,400
2. One Asstt. Instructor @ Rs. 400	4,800
3. One Carpenter @ Rs. 150	1,800
4. One Ground Engineer @ Rs. 350	4,200
5. One Carpenter helper @ Rs. 65	780
6. Two helpers & one Chowkidar @ Rs. 65	2,340
7. One Clerk & Storekeeper	2,400
8. One Winch Operator-cum-Automobile Engineer @ Rs. 250	3,000
9. One Asstt. to Winch Operator @ Rs. 100	1,200
10. One Sweeper @ Rs. 65	780
11. One Office Peon @ Rs. 65	780
12. Operation cost of Winch for 10,000 launches	5,000
13. Jeep, Cable etc. depending upon the number of launches given	1,500
14. Petrol for Jeep and Station Wagon	3,000
15. Replacement of Tyres etc.	500
16. Replacement of cable on Winch	500
17. Ply-wood, Fibre glue	1,500
18. Hony. Auditors	300
19. Accountant @ Rs. 160	1,920
20. Replacement of Winch Engine parts	500
21. Maintenance of Hangar Buildings	1,800
22. Replacement of Gliders	15,625
23. Replacement of other equipment	3,250
24. Maintenance of Gliderdrome and Bldgs.	3,000
25. Miscellaneous	1,500
Total	69,995
Or Say	70,000

सत्यमेव जयते

CHAPTER XV

DEVELOPMENT OF AIRMINDEDNESS

306. We have been asked to examine the media other than gliding for encouraging airmindedness among the young. We have already described, in a previous Chapter, how gliding can develop the sense of the air. We have already stated that it is not easy to define what airmindedness is. It may, however, be described as the consciousness of the importance of aviation and the part it can play in the progress and defence of a country. The man who flies the machine, the mechanic who examines its airworthiness, the passenger who travels in it, and the person who acquires knowledge of the different questions connected with aviation, develop the spirit of airmindedness in their own way. How to provide, therefore, the facilities for the young boy and the young girl in the formative period of their life to acquire knowledge about aviation so that it may develop in them a living interest in that subject, can be usefully examined. There are various ways of acquiring this knowledge. It may be acquired by the study of books on aviation and biographies of the pioneer who developed that industry. It may be developed by teaching how to make

models of aircraft. It may be gained by visiting aircraft factories and witnessing the actual operations of the aircraft. It can also be gathered by seeing films and witnessing exhibitions. One of the best ways, therefore, to develop the spirit of airmindedness is to secure for civil aviation its proper place in the educational policy of the country. The National Cadet Corps is a part of our national movement. The cadets of the Corps acquire not only the knowledge of various subjects connected with aviation, but they also learn how to fly. The Government have, therefore, already taken a very important step in the spreading of airmindedness both for the progress and defence of the country. It is not unusual to see a young boy in the Western countries to play with a toy aeroplane and to fly it. This early association with a toy aeroplane naturally excites his curiosity and kindles his interest to know more about it. We are conscious of the fact that our young boys and girls have to study a number of subjects during the formative period of their lives. It is, however, the natural desire of a country to foster in its youth a love for some of the vital activities which build up its national life and safeguard its independent existence. Bearing, therefore, the claims of different national activities in mind, we have examined some of the ways in which we can develop airmindedness amongst the youth of the country and have to make the following recommendations.

307. **Recommendations.**—We recommend that the spreading of air mindedness should form part of the educational policy of the country

2. We, therefore, recommend that the educational authorities may consider the advisability of taking the following steps for promoting the sense of the air amongst the youth of the country:—

(a) Study of books giving an account of the early attempts and achievements of man at mechanical flying, including gliding, ballooning, and power aircraft flying should be encouraged. It is desirable that such books should be specially prepared by the Education Department and made available at cheap cost to Schools, Colleges and Public Libraries.

(b) Pamphlets and booklets dealing with the various aspects of aeronautics and aviation such as "why balloons can reach greater height than aircraft"; "structure of the atmosphere and how it controls aircraft, airship, and balloon performance"; "the place of radio and other instruments as aid to air navigation"; "how the pilot lands through clouds and fog"; should be made widely available at a cheap cost. Such booklets are intended to give a general knowledge of the subjects and their influence on modern life.

(c) Aero-modelling is an excellent means of developing the spirit of initiation and the skill of craftmanship which arouses interest in aeronautical science. There has been no systematic development in this line in India. The Aeromodellers' Association of India at Calcutta has been striving to develop the love for aero-modelling by importing model aircraft and test kites into the country and making them available to its members and affiliated bodies. The National Defence Academy, the air squadrons of the N.C.C.

and the Air Force Academy in the country have also provided their students with facilities for practising aeromodelling. The movement, however, has made little headway in the country. We, therefore, recommend that aeromodelling should be encouraged as a first step amongst the students of science colleges and technical institutions.

(d) Special films giving an idea as to how aircraft are constructed and operated and how various aids are provided for the safe navigation may be shown to the students. Lectures, if possible, with the aid of magic lantern slides by qualified people on different subjects of aviation, giving general knowledge, may also be organised.

(e) Arrangements may be made for parties of students of schools and colleges living within a reasonable distance to visit aircraft factories, aerodromes, and flying clubs and informative talks may be given to them during the course of such visits.

(f) The Broadcasting Department may be requested to include radio talks in their programme on such general subjects as "what it costs to keep a private aircraft"; "aviation and air transport industry in India"; "aviation careers and how to qualify for them".

(g) Our museums should be encouraged to maintain special sections of aeronautics and development in civil aviation.

CHAPTER XVI

FINANCIAL IMPLICATIONS OF THE RECOMMENDATIONS

308. The working of the Flying School at the Civil Aviation Training Centre, Allahabad, costs at present about Rs. 8·32 lakhs, inclusive of the provision for depreciation and insurance. Under the scheme proposed by us, the cost of running that School in the future will come to Rs. 8·05 lakhs a year.

309. As regards the Flying Clubs, the amount of subsidy provided in the budget is Rs. 15 lakhs. The amount of flying subvention to be paid at the rate of Rs. 20 per hour flown, the overtime allowance to be paid at Rs. 5 per hour flown in excess of 1,000 hours, and the amount of bonus to be paid at Rs. 250 for every 'A' licence issued are, however, not limited in amount, but they will depend upon the hours flown at the Clubs. It is true that, in practice, the amount of subsidy actually paid to the Clubs has not exceeded the amount provided in the budget. It is, however, important to note that the amount of Rs. 15 lakhs to be paid by way of financial assistance (as budgeted at present) is not the maximum amount which the Central Government has laid down as the amount of subsidy payable under their policy of assistance to the Clubs. Under the scheme proposed by us, the present amount budgeted for is likely to exceed by a sum of Rs. 3 to 5 lakhs according to the number of hours flown being 3,500 or 4,500 at a club. It will, therefore, be noted that the increased amount of subsidy to be paid under our scheme is in accordance with the existing policy. In view of the active desire to foster further the love for sport flying and

to develop the air sense of the people, an additional payment varying from Rs. 3 to 5 lakhs by way of financial assistance should be considered as fair and reasonable.

310. As regards gliding, there is no definite policy, so far as we are informed, laid down by the Central Government. They have given both capital grants as well as financial assistance to run the gliding clubs. At present, there are only two such clubs in the country. The amount of financial assistance has, therefore, varied from Rs. 60,000 to Rs. 90,000 per year. Under the scheme proposed by us, we have suggested that as a first step, three more gliding clubs should be started, which will involve a capital grant of Rs. 11,25,000 for all the five gliding clubs, and a recurring grant of Rs. 3,50,000 for running them. The amount of financial help that has been recommended will, in view of the establishment of three new gliding clubs, be considered as fair, and we have no doubt that our recommendation is in accordance with our present financial ability.

311. We have also recommended the establishment of a Civil Air Board. This will be both a policymaking and administrative body. The work which it is expected to do is done at present by the Department of Civil Aviation, as well as to a certain extent by the Air Transport Licensing Board. Consequently, when the Civil Air Board is established, it will lead to certain economies in other departments. We, therefore, think that the additional expenditure involved in the working of the Civil Air Board is not likely to exceed a sum of Rs. 50,000 per annum.

312. Taking all the above facts into consideration, we are of the opinion that any additional financial help necessitated by our recommendations is not only modest but is also fully justified in view of the facilities which they will provide for achieving the objects which the Government have in view.

सत्यमेव जयते

CHAPTER XVII

SUMMARY OF RECOMMENDATIONS

Legislation pertaining to the licensing of private pilots and commercial pilots

313. **Revision of the existing Rules.**—Safety and efficiency have been the prime consideration in examining the existing legislation. It has been brought up to the standards laid down by I.C.A.O. A more comprehensive knowledge of ground subjects, a greater flying experience, more stringent flying and technical examination tests, and lesser privileges than before have been insisted upon in the different categories of licences proposed by us. We have, therefore, recommended that Part V—Chapter II—and Schedule II—Chapter II—of the Indian Aircraft Rules, 1937, so far as they concern Pilot's Licences, should be deleted and the amended Rules as embodied in Appendix 'F', be substituted in their places (Para. 135).

314. As the additional requirements and conditions laid down in paragraphs (1), (2), (3), (4), (7) and (8) of Section C of Schedule VIII of the Indian Aircraft Rules, 1937, have been included in the New

Rules for the grant of Commercial Pilot's Licence, Senior Commercial Pilot's Licence, and the Airline Transport Pilots Licence, proposed by us, we have recommended that these paragraphs should be deleted (Para. 139).

315. **Conversion of current licences into new licences.**—We are conscious of the fact that those who hold the existing licences cannot convert them overnight into the new licences proposed by us. In order to enable them to do so, we have recommended that they should be given a period of two years from the date, the new Rules come into force, for enabling them to convert their existing licences into new licences (Para. 149).

316. **Issue of directives.**—We fully appreciate the necessity of demanding compliance with stricter requirements of operation by airlines, on the ground of promoting greater safety. We have insisted that safety should be the prime consideration. We have, however, recommended that such directives must, except under extraordinary circumstances, conform to the Law as it stands, or they should only be enforced when the necessary change in the Law is made for that purpose (Paras. 151 to 154).

OPERATIONAL EFFICIENCY

317. (a) **Refresher Flying Training.**—We have recommended that pilots in charge flying and co-pilot flying engaged in scheduled air transport services should undergo 2 to 4 hours' refresher flying training respectively every 6 months. These hours should include the flying tests prescribed for the renewal of the instrument rating. These flying tests will be carried out by the Check Pilots appointed by the company for that purpose (Para. 163).

318. (b) **Periodical Checks.**—In order that all aircrew engaged on scheduled services can operate their services efficiently all the time, we have recommended that they shall undergo training, practice and periodical tests detailed in paragraph 164. The purpose of the above recommendation is to place an obligation on the aircraft operator to introduce an appropriate system of checking to ensure that a safe standard of operation is maintained. We have also recommended that the supervisory control over the operator, mentioned in para. 165, should be exercised by the proposed Civil Air Board and that it will be for the Civil Air Board to appoint the necessary observer for that purpose (Paras. 164 and 165).

319. In view of the responsibility imposed on the operator, as mentioned above, we have recommended that paragraphs 5 and 6 of Section 'C' of Schedule VIII of Chapter II of the Indian Aircraft Rules, 1937 should be deleted.

320. **Conditions of avoidance of fatigue and the hours of work of air-crew.**—We have recommended that before taking any legal steps for regulating the hours of working of air-crew, we should await the final decision of the International Civil Aviation Organization on this subject. In view of relevant practical considerations mentioned in Chapter V, we have, however, recommended that the Government in the meantime, should persuade the Air-line operators in the country to voluntarily restrict the maximum number of hours up to which they should allow their Pilots to fly to one hundred hours per month and one thousand hours per year (Para. 173)

RECRUITMENT AND TRAINING OF PILOTS

321. (a) **Private Pilot's Licence.**—We have recommended that training for Private or Sport flying should be continued to be given at the Flying Clubs in the future as in the past (Para. 175). There shall be, however, no restriction on clubs training commercial pilots at their own cost. We have, therefore, recommended that no restriction should be put on those who wish to undergo training for obtaining commercial pilot licence at their own cost, and we recommend that they may be given such training at the Flying Clubs (Para. 195).

322. (b) **Commercial Pilot's Licence.**—(1) *Limitation on the number to be trained.*—We have recommended that the maximum number of pilots who should be trained as Commercial Pilots per year for absorption in the air transport industry should not be more than 30 (Para. 194).

323. (2) *From where the Commercial Pilots should be recruited and where they should be trained.*—The training of the Commercial Pilot has been assuming greater and greater importance for the safety and comfort of the passengers and the efficiency and economy of air operations. Flying Clubs cannot, with their existing atmosphere, equipment and development, give such training. It will have to be imparted by an institution specially established and equipped for that purpose. (Para. 178). We have, therefore, recommended that half the number of the 30 pilots to be trained as Commercial Pilots should be recruited from the ex-personnel of the Indian Air Force, under a pre-selection system like the one which is in force in the United Kingdom, and the other half should be trained at the Flying School to be specially run for that purpose at the C.A.T.C. (Para. 194).

INCIDENCE OF COST ON PILOTS AIRLINE AND GOVERNMENT

324. **The cost which a Pilot incurs for his training.**—The figures given below show the estimated cost which a pupil incurs for obtaining his Private Pilot Licence and for obtaining his 'B' Licence with Dakota conversion according to his age, nationality and the place where he is trained:—

	A Licence under the existing Rules (1)	B Licence with Dakota conversion at the CATC for Pilots trained at the Flying Clubs (2)	B Licence with Dakota conversion for pilots trained at the CATC. (3)
	Rs.	Rs.	Rs.
Pilots under 28 years of age. . . .	850/-	12,500/-	6,000/-
Pilots under 28 years of age coming from outside the city in which the Flying Club is located. .	1,350/-	15,500/-	6,000/-
Pilots over 28 years of age. . . .	1,450/-	17,900/-	Not admitted.

	(1)	(2)	(3)
	Rs.	Rs.	Rs.
Pilots over 28 years of age coming from outside the city in which the Flying Club is located .	1,950/-	20,900/-	Not admitted.
Pilots who are non Indians . . .	2,350/-	26,000/-	Do.
Pilots who are non-Indians coming from outside the city in which the Flying Club is located . . .	2,850/-	29,000/-	Do.

If the cost of training is to be kept within a reasonable limit and if encouragement is to be given to a large number of people going in for sport flying, the fees that should be charged to the private fliers should be kept at a reasonable low level per hour in the future.

325. We have, therefore, recommended that with a view to develop sport flying and to spread air-mindedness in the country, a person under 28 years of age, irrespective of his nationality, undergoing flying training at the flying clubs, should not be charged more than Rs. 10 per hour for every hour flown to enable him to obtain his Private Pilot Licence and for five hours flying experience which he will require to keep his licence current. If a person is over 28 years of age, whether he is an Indian or non-Indian, he should not be charged more than Rs. 15 per hour for the same purpose. In addition to the hours of flying required for obtaining Private Pilot Licence and for keeping his licence current, a person irrespective of his age, going for sport flying at the clubs should be charged Rs. 25 per hour. This concessional fee will not entitle him to fly as a sport flier at the club for more than twenty hours during a year. This concessional flying for twenty hours will be subject to the condition that the total hours of subsidised flying of all sorts shall not exceed at a Club 4,500 hours per year (Para. 206).

326. **Cost of conversion training and the Pilot in command certificate training.**—Air-lines giving conversion training and the Pilot in command certificate training to the Pilots engaged by them have been giving that training to the Pilots at their own cost. We have recommended that whether the Air Transport Industry is carried on by the existing Air-lines Companies or whether it is run by a single Corporation, the cost of conversion training and the Pilot in Command Certificate training should be borne in the future by the State. The matter can only be re-examined when the Air Transport Industry has been able to build up such a financial strength as can ensure its stability and expansion in the future (Para. 204).

327. We have also recommended that conversion training on aircraft other than Dakota should be continued to be given in the future by the Air Line Companies or by the merged Corporation as the case may be, as in the past, but the cost incurred for such training should be met by a subsidy from the Central Government. We have considered it essential to make this recommendation to enable the Air Transport Industry to maintain and preserve its economis health (Para. 205).

328. **Cost of training the Commercial Pilots to be trained under the proposed new Scheme, at the Flying School at the Centre.**—We have recommended that a pupil should not be charged a sum exceeding Rs. 4,500 for the training which he will receive for a period of two years at the Flying School at the Centre under the Scheme recommended by us (Para. 226).

FLYING CLUB AND ITS ROLE IN THE FUTURE

329. **Its existence must be assured.**—Flying Clubs are a great storehouse of enthusiasm and inspiration for drawing out the potential air sense of the people of the country. We, therefore, strongly recommend that all possible steps should be taken to keep the Flying Clubs alive and in full vigour in the country in the future, as in the past (Paras. 87 and 237).

330. **Financial assistance.**—We recommend that the Central Government and the States should continue in the future their policy of subsidising the Flying Clubs in India (Para. 71).

331. **Improvements in Flying Clubs.**—We agree with the general view and recommend that the trainees should not be given the right to vote as long as they are trainees (Para. 84).

332. **Flying Instructors.**—We strongly recommend that the Flying Instructors should undergo a course of regular training for the purpose of ensuring a uniformity of standard at the Flying Instructors' School of the Air Force at Ambala, and it should be a condition of their employment that they should undergo periodically a refresher course and a categorisation test at that School (Para. 77).

333. **Encouraging Sport Flying.**—As the Government are anxious for encouraging air mindedness among the youth of the country, we recommend that all possible encouragement should be given to the Flying Clubs in the future to use the aircraft whether owned by them or loaned to them, for the purpose of joy rides, consistent with their primary responsibility for the training of pilots (Para. 78).

334. As exempting private owners' aircraft from landing and housing fees at their home port is likely to develop this type of sport flying, we recommend that neither landing nor housing fees should be charged to aeroplanes upto a gross weight of 5,000 lbs. owned by private individuals and flown merely for pleasure and not for business at their home ports. We would like further to recommend that in asking the private flier to comply with any new directives, the Government should bear in mind that it does not impose new financial burdens on him (Para. 79).

335. We recommend that pupils undergoing training for Private Pilot's licence or for Commercial Pilot's licence should neither be under an obligation to sign agreements nor be subjected to restrictions and penalty as are imposed on them at present (Para. 80).

336. **Future role of the Flying Club.**—The fundamental problem is how to secure the flying work for such a number of hours for the flying clubs as would enable them to have the fullest utilisation of their aircraft and technical personnel and others, and contribute to the economic working of the institution (Para. 240). The fundamental

basis of our scheme, therefore, is that each of the 10 clubs in the country should be assured of a minimum flying work of 3,500 hours per annum (Paras. 242 & 243).

337. The number of flying hours required to give training to the cadets of the N.C.C. will provide the very useful and the much-needed work to the flying club in the future. There is a big demand from the students of colleges to join the unit of the Air Wing of the N.C.C. We have, therefore, recommended that doubling the existing strength of the units of the Senior Division Air Wings should be adopted as the first step to meet this demand from the students of colleges and technical institutions (Para. 236). The cadets of the Air Wing of the N.C.C. can, therefore, supply the clubs with regular flow of a certain number of hours for training (Para. 242).

338. We have also recommended that in case the State Governments do not undertake to finance the additional expenditure involved in doubling the existing strength of the cadets of the Air Wing, the Central Government should raise their subsidies to the flying clubs to that extent so that they may thereby be able to discharge their responsibility for encouraging private flying amongst the students of colleges and technical institutions in this country (Para. 236).

339. If the flying clubs are not able to get the minimum work of 3,500 flying hours per annum we have recommended that flying training should be given to selected school and college students and teachers, free of cost, to make up the balance of 3,500 hours of flying work per annum for each of the 10 flying clubs in the country.

340. As regards financial assistance, each of the flying clubs should receive financial assistance upto the maximum of 4,500 flying hours per annum (Para. 249).

सत्यमेव जयते

341. We have dealt with the estimated amount of financial assistance that would be required as against the estimated amount of expenditure which all the clubs will incur on the basis of each of them flying for a minimum number of 3,500 hours per annum, as well as flying for a maximum number of 4,500 hours per annum, in paragraphs 249 to 252. The amount of additional subsidy which will be required for this purpose is also indicated therein. We have stated that the additional amount of subsidy which will be necessary, under our scheme, will vary from Rs. 3,40,000 to Rs. 5,80,000 on the supposition that the proposal for doubling the strength of the Air Squadrons of the N.C.C. is not accepted, and we have recommended that this additional subsidy is fair, just and modest, and should, therefore, be granted. We have further mentioned that both the States and the Central Government should continue to give the subsidy which they are giving at present. We have further recommended that the total amount of financial assistance to be given to the flying clubs from all sources should be so rationalised that the Centre should give it such an amount for balancing its budget as will be necessary to fill the gap, after taking into consideration the income received by the club from all other sources, including the financial assistance received from the State (Para. 254).

342. **Management and control.**—We have recommended that the Central Government and the State Governments should have the right to nominate one representative of their own on the management of the Clubs. It is understood that those State Governments will only have the right who would be giving financial grants to the Clubs located in the State (Para. 255).

343. There would be no such control as is vested in the D.G.C.A. over the activities of the Clubs in the future as it exists at present. We have, however, recommended that the Civil Air Board, which we have proposed, should exercise such supervision and control as may be necessary over the Clubs for ensuring the best use of the funds with which they are assisted either by the Central Government or by the States (Para. 255).

344. **Selection of Pupils for admission to the Clubs.**—Any one who is medically fit and shows an aptitude for flying should be admitted to the Clubs by the management of the Clubs. The number of Cadets to be admitted for training to the Clubs should be such as would not increase the flying work of the Clubs beyond 4,500 hours per annum (Para. 260).

345. **Curriculam for the training of Private Pilots.**—We have recommended that the curriculam which is laid down by the I.C.A.O. for this purpose should be adopted as the curriculum under which training should be given at the flying clubs. We have also given the power of laying down the details of the curriculum to the Civil Air Board (Para. 256).

346. **Standardization of training aircraft and equipment.**—As long as the existing aircraft are available and serviceable, we would not like to recommend the spending of large capital sum for the purpose of acquiring trainers. When the existing aircraft have finished their life, we have recommended that HT-2 trainers should be the aircraft with which training should be given in private flying at the clubs (Para. 257).

347. **Scales of pay for flying instructors and other staff.**—We have already recommended that the flying instructors should be trained at the Flying Instructors' School of the Indian Air Force. We have already recommended that they should be categorised. We, therefore, feel that it is not advisable to lay down any standard scales of pay for the instructors at the flying clubs. We have recommended that the scales of pay should be based on the grounds of merit and experience. It will be for the Civil Air Board in the exercise of their power of supervision and control to alter the scales of pay, if they consider it necessary to do so (Para. 258).

348. **Joy rides.**—We have recommended that the Flying Clubs should be allowed to give joy rides in aircraft either owned by them or in aircraft loaned to them at a reasonable charge which should include the cost of service (Para. 259).

349. **Concessions in Customs Duty.**—We have recommended that Light Air craft not exceeding a gross weight of 5,000 lbs., aircraft parts and light aircraft radio imported for the purpose of training in India, should be exempt from Customs Duty. It will be for the Ministry of Communications and the Finance Ministry to evolve a procedure that

may be considered essential for safeguarding the interests of revenue. (Para. 208).

350. **Duty on aviation petrol.**—We have recommended that for the purpose of encouraging sport flying and that too at as low a cost as possible, rebate to the extent of 100% on Customs Duty paid on aviation petrol should be granted to the flying clubs. (Para. 209).

351. **Landing and Housing fees.**—We have recommended that as a matter of principle private owned aircraft as well as flying club aircraft not exceeding a gross weight of 5,000 lbs. should be exempt from the payment of landing and housing fees at all airports when they are engaged in sport or pleasure flight. (Para. 210).

352. **Flying School at the Civil Aviation Training Centre and its future role.**—We have recommended that the Government should adopt in the future a uniform basis of financial assistance for the flying training imparted by the flying clubs or by the Flying School at Allahabad or at any other institution for that purpose. (Para. 103).

353. **Accommodation and amenities.**—We have recommended that the authorities concerned should bring the provision of these facilities and amenities up to the modern standards so that the trainees can have the best of the academic and social life in a healthy and lively atmosphere of cheer in their daily life. Our recommendation also applies, with greater force, to the quarters in which the staff are housed at the Centre. (Para. 105).

354. **Free conversion training for 'B' Licence-holders.**—We have recommended that the Flying School at Allahabad should give Dakota conversion training, free of cost, to anyone holding a 'B' licence and who wants to have it for the necessary endorsement of the type on his licence. (Para. 112).

355. **The future of the Flying School at the Civil Aviation Training Centre.**—It has to be remembered that our object is to lay the foundation of building up a training institution in India like the one which exists at Hamble or the one which recently came into existence at the Hague. India should look ahead and take a broader view of her responsibility for creating an institution where professional training should be given to pilots according to the best modern standards.

356. Our first recommendation is that the Flying School at the Civil Aviation Training Centre should not be continued on an experimental basis, year after year. The Flying School should be made a permanent institution for giving training to pilots who intend to follow a professional career in the air transport industry in India. (Paras. 213/214).

357. Our second recommendation is that the Flying School at the Civil Aviation Training Centre should be equipped and developed in such a manner as may enable it to give training on the best modern lines. (Para. 217).

358. Our third recommendation is that training at the Flying School should be for a period of two years. (Para. 215).

359. Our fourth recommendation is that the training at the Flying School should be given for 225 to 250 hours on Chipmunks, 30 hours on Ansons and 30 hours on Dakota. The extent of the above flying experience required from the pupils undergoing training at the Flying School may be reduced, in the case of pupils holding a Private Pilot Licence, by the Civil Air Board proposed by us if it considers desirable to do so. (Para. 218).

360. Our fifth recommendation is that the question of details in regard to the nature and extent of training that should be imparted at the Flying School, at the Centre, in the future, should be laid down by the Civil Air Board which we have proposed. (Para. 218).

361. **Method of selection.**—We have recommended that only those who have passed Intermediate examination and are under 25 years of age should be allowed to apply for admission to the School. There should be a competitive qualifying examination. This examination will be held by the Civil Air Board. Those who successfully pass the qualifying examination will be asked to appear for an interview before the Civil Air Board. The candidate will have to pass the medical test. We have recommended that subject to an applicant passing all the three tests, *viz.*, qualifying examination, interview and medical test, preference should be given for admission to the Flying School to those who hold a Private Pilot's licence. This will enable us to make the best use of subsidised flying and to ensure the admission into the Flying School for advanced training of such pupils as have already shown aptitude for flying. It is to be remembered that the number which we have recommended is 15 per year. The Civil Air Board will have to decide, as a result of the qualifying examination, interview and the medical test, and subject to the condition of giving preference to those who hold a Private Pilot's Licence, who these 15 or, any other number that may be fixed, should be. It is possible that the selected candidates even after going successfully through the tests mentioned above, may not be found suitable for undergoing a flying career. It should, therefore, be left to the Civil Air Board to decide, as a result of the report submitted in that connection by the Principal of the Flying School, whether his further training would be profitable to him and should be continued, or he should be discharged from the School. (Para. 220).

362. **Standardisation of training aircraft and equipment.**—As the Flying School has already got Chipmunks, Ansons and Dakotas and as we consider them suitable for *ab-initio* and advanced training, we recommend that the training at the Flying School be given on Chipmunks, Ansons and Dakotas, and those aeroplanes should be considered as standard aeroplanes for that purpose until Chipmunk is replaced by H.T.2 for light single engine training. (Para. 221).

363. **Financial implications of running the School under the above proposals.**—As the scheme proposed by us for training at the Flying School is not going to impose any additional financial burdens on the Government, we have no doubt that the establishment of the Flying School as a permanent institution will be acceptable even on financial consideration. (Para. 224).

364. **Fees payable for future training.**—We have recommended that a pupil should not be charged a sum exceeding Rs. 4,500 for the training which he will receive for a period of two years at the Flying

School at the Centre, under the scheme recommended by us. (Para. 226).

PROBLEM OF UNEMPLOYMENT

365. We have recommended that pilots holding 'B' licences should be given the conversion training free of cost at the C.A.T.C. and they should also be given facilities for flying at the expense of the State for keeping the licences current. We have also recommended that the unemployed pilots holding 'B' licences, desirous of going in for conversion training at the C.A.T.C., should appear before the Civil Air Board and should be admitted for such training at the Flying School only after they are selected for that purpose by that Board. (Para. 263).

366. We have recommended that whenever a pilot engaged by the airline companies has been raised to a higher position to replace a foreign pilot, the vacancy thus created should be filled from the number of the existing unemployed pilots holding 'B' licences, if they are properly qualified for that purpose. (Para. 265).

367. We have recommended that the Air Headquarters should be requested to give their best consideration and help in recruiting from the existing unemployed pilots holding 'B' licences, provided they are found suitable and meet minimum requirements for such recruitment. (Para. 266).

368. We have also recommended that such of the unemployed pilots holding 'B' licences, as may be found suitable, for such type of work as dusting of crops, spraying of chemicals, anti-malarial work, anti-locust operations, aerial survey, etc. should be given special training for that purpose at the expense of the State. That will be a new avenue which may be open to them in the future for relieving the existing unemployment. A few pilots may be trained as Glider Instructors and employed in the development of gliding in India. (Para. 267).

369. We have also recommended that if any of the existing unemployed pilots holding 'B' licences desires to serve as an Air Traffic Control Officer, he should be given preference to fill that post, when available, provided he fulfils other conditions of recruitment. (Para. 269).

CIVIL AIR BOARD

370. We recommend that a Civil Air Board should be constituted as a statutory body. The Board shall consist of the following members:—

(1) A non-official Chairman of standing in public life and preferably with knowledge and experience of educational activities in the country.

(2) A representative of the Air Headquarters.

(3) The Director General of Civil Aviation or his representative.

(4) Two representatives of the Air Transport Association or two representatives of the new Air Corporation when it is formed, one of whom shall be a man possessing knowledge and experience of technical subjects.

(5) A pilot of outstanding ability and experience.

(6) A representative of the flying clubs.

(7) A Member of Parliament.

The Chairman shall be a full time member of the Board. The Board shall have the services of a full time secretary who should have 5 to 7 years' experience of the air transport industry in general and the training problems of aircrew personnel in particular.

The Board shall be directly responsible to the Minister. The Board shall hold a meeting once a month or more often as necessary.

371. The functions of the Civil Air Board shall be as follows:—

(1) To select candidate for admission to the Flying School of the C.A.T.C. for training as Commercial Pilots.

(2) To lay down the details of curriculum and training to be imparted at the Flying School of the C.A.T.C. and the Flying Clubs.

(3) To take all steps for the maintenance of propor standards of instruction, training and discipline of the Flying School and the Flying Clubs.

(4) To exercise supervision and control for ensuring the best use of the financial assistance given to the Clubs.

(5) To select examiners for the examinations to be conducted for the granting of the different categories of licences to pilots.

(6) To satisfy that the operator takes all necessary steps for maintaining the operational efficiency of the pilots and aircrew at the highest level.

(7) To take all possible steps for fostering and encouraging love for sport flying and developing the air-mindedness in the country.

(8) To consider all questions affecting the national civil air policy.

(9) To tender advice to the Minister in regard to any or all matters referred to in (1) to (8) above, well as or/any/ other subject which may be referred to it by the Minister. (Paras. 278 & 279).

MISCELLANEOUS MATTERS

372. **Standardization of scales of pay of pilots, Check Pilots, and Conversion Course Instructors.**—We have recommended that it is not necessary to lay down standard scales of pay for different grades of Pilots, Check Pilots and Conversion Course Instructors, and we, therefore, recommend that no such standard should be laid down. (Para. 280).

373. **Qualifications for Check Pilots.**—A Check Pilot should be a man of wide experience, having at least 3,000 hours of command on a type which he is asked to check. He should possess a high sense of responsibility and he should be a man of tact and judgment. He must be able to assess faults in flying. (Para. 281).

374. As regards the Conversion Course Instructors, nobody who has not got wide experience of at least 3,000 hours of command of the type on which he is to instruct, should be allowed to give instructions as a Conversion Instructor. (Para. 282).

375. **The Aero Club in India.**—We recommend that the free grant of land and the financial assistance which the Aero Club has asked for to enable it to have its own office with qualified and adequate staff, an ante-room, a reference library, and residential accommodation for five to ten visiting members should be given to it to enable it to achieve its object. (Para. 288).

376. **Training for Helicopters.**—If and when a Helicopter is imported, it will be useful to select personnel of the Aeronautical Inspection Department and to send them to the country of manufacture for a course of training in its maintenance and inspection. That will also be the time to consider what facilities, if any, should be provided at the C.A.T.C. for Pilot training on Helicopters. (Para. 290).

377. **Crop dusting and Aerial spraying.**—We recommend that the Flying Instructors of the Flying Clubs should be given training as pilots for the purpose of crop dusting, aerial spraying, etc. either under the American Pilots who are working at present in the country or under such pilots who have been trained by them for that purpose. When a scheme for crop dusting and aerial spraying is duly organised, pilots trained in this work would be necessary. We, therefore, recommend that the required training for that purpose may be given at the Flying Clubs, and preference for such training may be given to the existing unemployed 'B' Licence Pilots. (Para. 291).

378. **Training for Aerial Survey.**—As the aerial-survey work will be done by the Air Force in the near future, Pilots on the Civil side should be trained by the Air Force for that purpose. (Para. 292).

379. **Development of Gliding in India.**—We have made the following recommendations:—

(i) As gliding will promote airmindedness amongst the youth of the country, both the Central and the State Governments should develop the gliding activities in India.

(ii) The existing gliding clubs at Poona and Delhi should be given the financial help which they need for enabling them to put their activities on an economic and efficient footing.

(iii) Gliding Clubs should be started under the auspices of all the Universities in the country and the students of the Colleges should be given training in gliding free of cost. Three such Gliding Clubs should be started in 1954-55 at Madras, Calcutta and Lucknow. Gliding Clubs at other University centres should be started year after year in the light of the experience gained of the working of the two Clubs that exist today and the three Clubs that have been proposed to be started in 1954-55.

(iv) The capital expenditure for the Gliding Clubs should be financed by the Centre. The recurring expenditure of the Gliding Clubs should be shared between the Centre and the State in which the Gliding Club is located.

(v) Instructors for gliding should be trained at the Gliding Club at Poona.

(vi) The manufacture of gliders should be encouraged side by side with the development of the gliding activities in the country.

(vii) The Gliding Club should have a separate and exclusive glider-drome for its gliding activities. (Para. 305).

380. **Development of Air-mindedness.**—The spreading of air-mindedness should form part of the educational policy of the country. Study of books giving an account of the early accounts and achievements of men at mechanical flying, etc., pamphlets and booklets dealing with various aspects of aeronautics and aviation etc., aeromodelling, special films giving an idea as to how aircraft are constructed and operated etc., arrangements for parties of students of schools and colleges to visit aircraft factories, aerodromes, flying clubs etc., radio talks and maintenance of special sections of aeronautics and development in civil aviation in museums should be encouraged by the education authorities in this country. (Para. 307).

381. **Financial Implications of the Recommendations.**—The additional financial help required to implement our recommendations is not only modest, but is also fully justified in view of the facilities which they will provide for achieving the subjects which the Government have in view. (Para. 312).

CHAPTER XVIII

ACKNOWLEDGMENTS

382. We are indebted to the State Governments, the Air Headquarters, the Director General of Civil Aviation, the Principal, Civil Aviation Training Centre, the Airline Companies, the Flying Clubs, the Aero Club of India, the Aeronautical Society, the Principal, S.K.C.G. College, Parlakhimedi, Orissa, the Gliding Clubs, the Aero-Modellers Association and various other commercial bodies and individuals who were good enough to answer our questionnaire.

383. We are also obliged to those who took the trouble to come before us and give evidence.

384. We have also to express our thanks to Major-General Wadalia, Commandant of the National Defence Academy, Wing Commander Bobb, President of the Selection Board of the Air Force, Group Captain Goyal of the Air Force Academy at Jodhpur, Group Captain Mehra of the I.A.F. Ground Training School at Tambaram, the Principal of the Indian Air Force Technical Training College for officers and apprentices at Jalahalli, the Principal of the Madras Institute of Technology, Madras, Shri J. M. Shrinagesh, General Manager of Hindustan Aircraft Ltd., Dr. P. Nilakantan, Deputy Director, Research and Development section of the Civil Aviation Department, for taking us round their institutions and explaining to us the work they were doing.

385. We are also obliged to the Governor of Madras, the Chief Ministers of Bombay and Uttar Pradesh, Shri J. R. D. Tata, and Col. Virendra Singh, Director, National Cadet Corps, for receiving us and giving us the benefit of their views.

386. We are also indebted to Shri Jagjivan Ram, Minister for Communications, for receiving us when we were at Delhi.

387. We are also obliged to Shri R. N. Kathju, Principal of the Civil Aviation Training Centre, Allahabad, for the very helpful manner in which he assisted us in preparing certain statements of cost.

388. We have also to convey our thanks to the Indian Merchants' Chamber, Bombay, the Bengal National Chamber of Commerce at Calcutta, and the Poona Club at Poona, for so kindly allowing us the use of their halls in connection with our work at those places.

389. We are also deeply indebted to our staff and particularly to our colleague and Secretary, Shri G. S. Subramaniam. The tact and patience with which he dealt with the problems that came before us, the great experience which he had as the Deputy Director, Training and Licensing of the Civil Aviation Department, and the strenuous work which he put forth all throughout the enquiry in preparing the material and gathering the data necessary for our task proved of great help to us. We are greatly obliged to him for the sense of responsibility which he displayed and the ability and devolution which he showed in the preparation of the Report which have greatly lightened our labours. But the burden of preparing everything from day-to-day for our work fell on Shri P. J. Menon, Superintendent, and the ability, diligence and thoroughness with which he discharged his duties have won our appreciation. He has done a creditable piece of work and we are thankful to him for that. The task of preparing the statements and analysing the statistics fell on Shri P. J. Menon and Shri B. S. Khanna, and we are happy to state that they did so to our entire satisfaction. The rest of the Staff also put forth very hard work, sometimes at very great inconvenience to themselves and often worked up to late hours. Without their willing and effective co-operation, it would not have been possible for us to finish our task within the time which we have actually taken to do so.

M. A. MASTER, Chairman.
K. B. ROY, Member.
Member.
Member.
Member.
Member.

C. N. VAKIL, Member.
G. S. SUBRAMANIAM, Member Secretary.

Bombay, dated the 12th January, 1953.

सत्यमेव जयते

PART II

PART II

APPENDICES AND STATISTICS

APPENDICES

A.—Questionnaire issued by the Committee.

B.—List of Bodies and Persons to whom copies of the Committee's Questionnaire were sent.

C.—List of Memoranda received by the Committee.

Other Memoranda and Representations received by the Committee.

D.—List of Foreign Embassies who supplied information on Training Facilities.

E.—List of Bodies and Persons who gave Oral Evidence before the Committee.

F.—Proposed Rules for Licensing of Civil Air Pilots.

G.—I. C. A. O. Curriculum for the Training of Private Pilots, Commercial Pilots and for Instrument Rating.

STATISTICS

I.—Statement giving the particulars of the income and the financial assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during the period of six years, ending the 31st March, 1952.

II—VII.—Statements giving the particulars of the income and the financial assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during each of the years ending 31st March, 1947 to 1952.

VIII.—Statement giving the particulars of (1) the detailed breakdown of expenditure (2) the number of aircraft under operation (3) the number of hours flown (4) the value of aircraft and properties owned by the Clubs (5) the working cost per hour of all the subsidised flying clubs in India during the period of six years ending 31st March, 1952.

IX—XIV.—Statements giving the following particulars in connection with each of the flying clubs in India for each of the years ending the 31st March, 1947 to 1952: (*i*) the detailed breakdown of expenditure (*ii*) the number of aircraft under operation (*iii*) the number of hours flown (*iv*) the value of aircraft and other properties (*v*) the working cost per hour.

XV.—Statement giving the following particulars in connection with the aircraft owned by and loaned by the Government to all the flying clubs in India during each of the six years ending the 31st March, 1952 : (*i*) aircraft at the beginning of the year (*ii*) aircraft added during the year (*iii*) aircraft written off during the year (*iv*) aircraft at the end of the year.

XVI—XXV.—Statements giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to each of the ten Flying Clubs during each of the six years ending the 31st March, 1952 :—

(*i*) aircraft at the beginning of the year

(*ii*) aircraft added during the year.

(*iii*) aircraft written off during the year

(*iv*) aircraft at the end of the year.

XXVI.—Statement giving the number of hours flown at each of the Flying Clubs in India and the total of A, A-1 and B licences issued to the trainees of each of these Flying Clubs during each of the six years ending the 31st March, 1952.

XXVII.—Statement giving the particulars of the different types of aircraft owned by and loaned to each of the Flying Clubs in India as on 31st March, 1952.

XXVIII.—Statement indicating the places from where the trainees for 'A' licences of each of the Flying Clubs were trained for each of the three years ending the 31st March 1952 :

(*i*) trainees normally residing in the city
(*ii*) trainees coming from outside the city
(*iii*) trainees who come from outside the State.

XXIX.—Statement indicating the places from where the trainees for 'B' licences of each of the Flying Clubs were trained for each of the three years ending the 31st March, 1952 :

(*i*) trainees normally residing in the city
(*ii*) trainees coming from outside the city
(*iii*) trainees who come from outside the State.

XXX.—Statement giving the number of instructors employed by the Flying Clubs and the C. A. T. C. Allahabad with the particulars of their nationality and the places where they were trained as on the 30th June, 1952.

XXXI.—Statement giving the number of trainees for 'A' and the trainees for 'B' licences at the Flying Clubs of India as on 30th June, 1952.

XXXII.—Statement giving the particulars of the starting salary and the total salary drawn by the Instructors, Engineers and Secretaries of each of the Flying Clubs in India as on 30th June, 1952.

XXXIII.—Statement giving the number of Commanders and Co-pilots employed by the scheduled and non-scheduled airlines of India as on the 30th June, 1952, together with the particulars of their nationality and the places where they were trained.

सत्यमेव जयते

APPENDIX-A

GOVERNMENT OF INDIA

MINISTRY OF COMMUNICATIONS

Dated, New Delhi, the 30th April, 1952.

From

Shri G. S. Subramaniam,

Secretary, Committee on Training of Civil Air Pilots.

To

All Air Transport Companies; Director General of Civil Aviation, Air Transport Licensing Board; Principal, Civil Aviation Training Centre, Allahabad; All Flying Clubs; All State Governments; Members of Parliament; Ministries of Government of India; Chambers of Commerce; Trade Associations; Air Headquarters; Aero Club of India; Gliding Clubs in India; V. Chancellors of Universities; Principals of Colleges and Technical Institutions; Director of the School of Economics and Sociology, Bombay; Registrars of Universities; General Manager, Hindustan Aircraft Ltd., Bangalore; Indian Institute of Science, Bangalore; Madras Institute of Technology, Madras; Air Technical Training Institute, Dum Dum; Aeronautical Society of India; Air Transport Association of India; College of Aeronautical Services; Pilots' Guild; Oil Companies, etc.

SUBJECT:—*Questionnaire issued by the Committee on Training of Civil Air Pilots*

SIR,

The Government of India, Ministry of Communications, in their Order No. 14-A/25-52, dated 15th April, 1952, have constituted a Committee on training of Civil Air Pilots with the following members:

(1) Shri M. A. Master, *Chairman.*

Members

(2) Director General of Civil Aviation, or his Representative.
(3) A Representative from Air Headquarters.
(4) Rai Bajrang Bahadur Singh, Raja of Bhadri.
(5) Shri K. K. Roy, Managing Director, Airways (India) Ltd.
(6) W/Cdr. W. H. Burbury, Airline Manager, Air Services of India Ltd.
(7) Capt. S. Bujakowski, Director, Himalayan Aviation Ltd.
(8) Professor C. N. Vakil, Bombay University, Bombay.
(9) Shri G. S. Subramaniam, Deputy Director Training and Licensing, *Member-Secretary.*

2. The detailed terms of reference of the Committee are as follows:—

The Committee shall examine the existing system of civil air pilot training in all its aspects and recommend measures for its improvement consistent with economy, with particular reference to the following:—

(1) *Training of Commercial Pilots*:

- (a) Qualifications, number and method of selection of trainees.
- (b) Organisation of institutions for training of commercial pilots—study of the working of the Civil Aviation Training Centre and proposals for its improvement.
- (c) Legislation pertaining to the licensing of commercial pilots.
- (d) Curricula for the training of commercial pilots of various grades and qualifications of Command pilots and Co-pilots for single-engined, twin-engined and multi-engined aircraft.
- (e) Training for special types of aircraft and special types of work—*e.g.*, Helicopters, aerial survey and spraying of chemicals.
- (f) Standardisation of training aircraft and equipment.
- (g) Scheme for financial assistance for training of commercial pilots—incidence of costs on pilots, airlines and Government.
- (h) Ensuring operational efficiency of pilots—system of periodical checks and refresher courses, laying down of conditions for avoidance of fatigue of air crew.
- (i) Qualifications for check pilots and instructors for conversion courses and their periodical checks.
- (j) Standardisation of scales of pay of different grades of pilots, check pilots and conversion course instructors.
- (k) Liability of airline pilots to serve under the State, if required.

(2) *Training of Private Pilots*:

- (a) Qualifications, number and method of selection of trainees.
- (b) Evaluation of flying clubs and other agencies for the training of private and commercial pilots and recommendations for organisation of Model Institutions, giving details of organisation and equipment.
- (c) Legislation, pertaining to private flying.
- (d) Curriculum for the training of private pilots.
- (e) Standardisation of training aircraft and equipment.
- (f) Scheme for financial assistance for training private pilots, including concessions in customs duty on light aircraft, aircraft parts, light aircraft radio, landing and housing fees and duty on aviation petrol.
- (g) Qualifications for Flight-Instructors and other staff engaged in flying training instructions.

(h) Scales of pay for flight instructors and other staff employed in the training institutions.

(i) Encouragement of private flying generally and in particular by students of colleges and technical institutions.

(3) Gliding and other media for encouraging airmindedness among the young.

3. After preliminary discussions on the subject the Committee has drawn up a questionnaire on different aspects of the subject of the enquiry. I am to enclose a copy of the questionnaire and to request that you will kindly favour the Committee with your replies.

4. The questionnaire is designed to cover the whole field of the enquiry and follows the main heads of the terms of reference of the Committee. It is not, however, expected that all those who may be pleased to send replies should attempt to answer all the questions. The answer may be confined to the questions about which it is felt that a useful contribution can be made.

5. Any points in the questionnaire which may be obscure and may require clarification may kindly be referred to the undersigned. If any, body or person to whom this questionnaire is addressed wishes to give its or his views on any points relevant to the enquiry which may not have been included in the questionnaire, it would be convenient if such points were dealt with in supplementary memoranda.

6. It will facilitate the work of the Committee if the bodies or persons to whom this questionnaire is addressed could indicate, along with their replies, whether they would like to appear before the Committee at such place and time as the Committee may conveniently fix at a later stage of its deliberations.

7. It is requested that replies to the questionnaire may kindly be sent to the undersigned so as to reach him latest the 10th June, 1952. The replies should be in 15 copies and should indicate what portion, if any, is desired to be treated as confidential.

8. All replies and all correspondence relating to the questionnaire and the work of the Committee may be addressed to the Secretary, Committee on Training of Civil Air Pilots, Office of the Director General of Civil Aviation, Talkatora Road, New Delhi-2.

Yours faithfully,
G. S. SUBRAMANIAM,
Secretary.
Committee on Training of Civil Air Pilots.

QUESTIONNAIRE

PART I

Training of Commercial Pilots

I. Existing training facilities:

(a) What are the existing facilities for the training of commercial pilots in India and what was the annual number of pilots turned out, during the last five years, as a result of such training? Please give a brief description of the nature and extent of such facilities.

(b) Has your organisation provided facilities for the training of commercial pilots? If so, please describe the same briefly. What is the number trained by your organisation, during the last five years, and what is the number which it trains per year now?

II. Responsibility for training:

(a) Whose responsibility it should be, in your opinion, for providing facilities for training commercial pilots in India?

(b) Do you know if such training is provided in other countries by the State? If so, kindly state briefly its nature and extent.

III. Nature of facilities and conditions of entry:

(a) What should, in your opinion, be the nature and extent of the facilities that should be provided in India for the training of commercial pilots?

(b) Do you consider it necessary or desirable that there should be a central institution or a number of institutions for the training of commercial pilots in India? If so, state your reasons in support of your opinion.

(c) What should, in your opinion, be the conditions of entry of the future trainees into such an institution or institutions with special regard to education, age, physical fitness, character and intelligence? Please state them fully.

(d) Do you think that the trainees who may seek entry into such an institution or institutions should appear at a qualifying examination? If so, what should be the minimum and maximum age for appearing at such an examination and what should be the educational standards on which such an examination should be based? Where and which authority should carry on such a qualifying examination?

(e) Do you think that in addition to passing the qualifying examination a trainee should appear for an interview, before an appropriate body? If so, what should be the constitution of such body and what test or tests should it apply?

(f) Do you consider it necessary or desirable that the number of trainees that should be admitted for training in such an institution or institutions per year should be limited? If so, what that number should be which would meet all the present and near future requirements of commercial pilots in the country? Please give your reasons for your answer.

(g) If the answer to (f) be in the affirmative, would you agree that only such a number of trainees as may be determined under (f) should be selected for admission into the proposed institution or institutions, in order of their merit, as determined by the interviewing appropriate body?

IV. Training at the Civil Aviation Training Centre:

(a) What are the scope and method of training in respect of flying at the Civil Aviation Training Centre at Allahabad? Is it your opinion that that training requires improvement? If so, what suggestions you would like to make for improving that training? Please give reasons in support of your answer.

(b) Is it your opinion that there should be co-ordination between the training activities of the flying clubs and the Civil Aviation Training Centre? If so, what steps should be taken to achieve the same and what part should the CATC play in promoting such co-ordination? Please give reasons in support of your answer.

V. Flying clubs and training:

(a) What part have the flying clubs played in the training of commercial pilots?

(b) Do you consider the flying clubs as suitable organisations for the training of modern commercial pilots in the future, having special regard to—

- (i) the standard of training;
- (ii) equipment and staff;
- (iii) hostels and other amenities for the trainees;
- (iv) maintenance of discipline and development of a sense of responsibility;
- (v) economy in operation.

Kindly give reasons for your answer.

(c) What should, in your opinion, be the part which the flying clubs should play in the training of commercial pilots in the future and how should they be organised, equipped, administered and controlled for that purpose?

VI. Financial assistance for training:

(a) Do you know if financial assistance is given by the State in other countries for the training of commercial pilots? If so, kindly state the nature and extent of such assistance.

(b) What does it cost a trainee to become a commercial pilot in India?

(c) Do you know if any part of the cost of training for becoming a commercial pilot is borne by a civil aviation company? If so, kindly state the nature and extent of the cost so borne and the conditions, if any, attached in connection with the bearing of such cost. Do you consider that an airline should bear such cost? If so, to what extent and on what conditions?

(d) What should be the nature and extent of the financial assistance which the Central Government should give for providing facilities for the training of commercial pilots in India and for promoting and encouraging such training in the country?

(e) Do you consider it desirable that completely free training should be given at the expense of the State to suitable and deserving trainees? If so, what should be the number of such trainees per year and what should be the conditions, if any, that should be attached to such free training?

VII. Standards for the grant of Licences:

(a) The ICAO have laid down certain standards for the grant of—

(i) Commercial pilot's licence;
(ii) Senior Commercial Pilot's licence.
(iii) Airline transport pilot's licence.

Is it your opinion that such standards are adequate and meet the needs of Indian civil aviation or do they require strengthening? If the latter, kindly give details with reasons thereof.

(b) Is it your opinion that the existing system under which tests and examinations are carried out for making recommendations for the issue of licences is adequate and satisfactory? If not, have you any suggestions to make for the improvement of the existing system or would you like that a new machinery for the purpose should be created? Please give full reasons for your answer.

VIII. Curricula for Training:

The ICAO have curricula of training for various grades of pilot's licence. Do you consider those curricula adequate or would you suggest any changes? If so, what and for what reasons?

IX. Training for special types of work:

What facilities, if any, should be provided for training pilots for special types of aircraft and special types of work, including the following:—

(i) Helicopters;
(ii) Aerial Survey;
(iii) Spraying of chemicals;
(iv) Air-sea rescue.

X. Standardisation of Trainer aircraft:

(a) Do you consider standardisation of training aircraft and equipment desirable? If so, what are your suggestions in respect of *ab initio* trainer and advanced trainer as well as their connected equipment?

(b) Is it necessary, in your opinion, to provide some form of medium twin-engined aircraft for training purposes as an intermediate stage between the primary trainer aircraft and the aircraft in general use in the airlines?

XI. Checking of Pilots and Refresher Courses:

(a) Do you consider systematic checking of commercial pilots necessary? If so, what should be the nature of the checks and what should be the agency for carrying them out—airlines concerned, the State or both? Please give reasons for your answer.

(b) Should these checks be both periodical and/or surprise and carried out during scheduled services as well as on special aircraft? Please give detailed reasons in support of your opinion.

(c) If refresher courses are, in your opinion, necessary, where and how should such courses be carried out? Please give details of the syllabus for such refresher courses.

XII. Qualifications of Check Pilots and Instructors:

(a) What in your opinion, are the qualifications required in a (i) Check Pilot, (ii) Instructor, both "*ab initio*" and "conversion"?

(b) How are Check Pilots and Instructors to be checked, at what intervals and by which agency or agencies? Please give reasons in support of your answer.

(c) Is there any system of grading Instructors in any country? If so, where it is and what is its nature? Is it your opinion that a system of grading Instructors should be introduced in this country? If so, what should be its nature? Please give full reasons in support of your answer.

XIII. Hours of Work:

(a) What is the minimum and the maximum number of hours which pilots in your organisation are required to fly consecutively at a time, during 24 consecutive hours, during any period of 30 consecutive days and during any period of 12 consecutive months?

(b) What, in your opinion, should be the maximum number of hours for which a pilot may be permitted to fly consecutively at a time during 24 consecutive hours, during any period of 30 consecutive days, and during any period of 12 consecutive months?

(c) Is it your opinion that the ground stop time, other than that spent at terminals, and the number of ports made should be taken into consideration for the fatigue factor, and, if so, in what manner and to what extent?

(d) Have you suggestions, if any, to make for avoidance of fatigue, experienced by the air crew or, at any rate, for the reduction of the strain caused by fatigue? Please give reasons in support of your answer.

XIV. Scales of Pay:

(a) What are the existing scales of remuneration to *wit* pay, allowances and other benefits of different grades of pilots, check pilots and instructors in the country?

(b) Do you think it necessary or desirable that these scales of remuneration should be standardised? If so, what should be these scales?

(c) What should, in your opinion, be the fair scales of pay of different grades of pilots, check pilots and conversion course instructors in India? Kindly give reasons for your answer.

(d) Have you any special observations to offer in regard to the existing conditions of service and suitability for employment of different grades of pliots, check pilots and instructors?

XV. Obligation to serve the State:

(a) Do you know if commercial pilots are under any obligation to serve the State in other countries? If so, please give the nature of such obligations and the conditions under which they are to be fulfilled.

(b) Is it your opinion that commercial pilots in India should be under an obligation to serve the State? If so, in what manner and on what conditions?

(c) Have you any suggestions to make which would facilitate the better utilisation of commercial pilots in times of emergency without in any way affecting the efficiency or safety of commercial air transport? Please give reasons in support of your suggestions.

PART II

Training of Private Pilots

I. Existing Training Facilities:

(a) What are the existing facilities for the training of private pilots in India and what was the annual number of pilots turned out, during the last five years, as a result of such training? Please give a brief description of the nature and extent of such facilities.

(b) Has your organisation provided facilities for the training of private pilots? If so, please describe the same briefly. What is the number trained by your organisation during the last five years and what is the number which it trains per year now?

In giving the number of pilots trained, please give figures separately under the following categories:—

(i) Those who have obtained "B" licences.

(ii) Those who have been trained for, but not obtained "B" licences.

(iii) Those who have obtained "A-1" licences.

(iv) Those who have obtained "A" licences and renewed the same.

II. Responsibility for Training:

(a) Whose responsibility it should be, in your opinion, for providing facilities for training private pilots in India?

(b) Do you know if such training is provided in other countries by the State? If so, kindly state briefly its nature and extent.

III. Nature of Facilities and conditions of entry:

(a) What should, in your opinion, be the nature and extent of the facilities that should be provided in India for the training of private pilots?

(b) Do you consider it necessary or desirable that there should be a central institution or a number of institutions for the training of private pilots in India? If so, state your reasons in support of your opinion.

(c) Is it your opinion that any conditions be attached to the entry of trainees into such institutions? If so, what should be those conditions? Do you think those conditions should have any special regard to education, age, physical fitness, character and intelligence of the trainees? Please give reasons in support of your answer.

IV. Civil Aviation Training Centre—training of private pilots:

Is it your opinion that the Civil Aviation Training Centre should also provide facilities for the training of private pilots or take any effective steps for promoting and encouraging such private flying in the country?

V. Flying Clubs and Training:

(a) Is it your opinion that the existing Flying Clubs fulfil all requirements for the training of pilots for private licence? If not, what suggestions you would like to make to improve that system of training, particularly with reference to the type of equipment, the system of management, the facilities for ground instruction and desirability of developing a sense of discipline and responsibility?

(b) Is it your opinion that the activities of the flying clubs should be restricted to the provision of the facilities for training, or should these activities also include the social side of the clubs, as they do at present?

(c) As the subsidies from the Central Government form the real mainstay of the flying clubs providing facilities for the training of private pilots, what is your opinion as regards the fuller and better utilisation of these subsidies, for promoting the training of private pilots?

(d) What should be, in your opinion, a model institution for imparting training in private flying and how should that institution be organised, equipped, financed and managed?

VI. Financial Assistance for training of Private Pilots:

(a) Do you know if financial assistance is given by the State in other countries for the training of private pilots? If so, kindly state the nature and extent of such assistance.

(b) What does it cost a trainee to become a private pilot in India?

(c) What is the nature and extent of the financial assistance which the Central Government and/or the States have been giving to your organisation for the training of private pilots? Please give details of the assistance received by you during the last 5 years. Are there any conditions attached to the grant of such financial assistance? If so, please state the nature of those conditions.

(d) Is it your opinion that the amount of financial assistance which the Central Government has been giving to the Flying Clubs per year is adequate and the form in which it is given suitable and satisfactory for enabling them to provide proper facilities for the training of private pilots? If not, kindly state your views as regards the nature and extent of the financial assistance that the Central Government should give for that purpose, the form in which such assistance should be given and the conditions of inspection, supervision and control that the Central Government should lay down for that purpose.

(e) What is the assistance, if any, which the Flying Clubs have been receiving at present in the nature of concessions in customs duty on aircraft, aircraft spare parts aircraft radio equipment, landing and housing fees and rebate on petrol duty? Is it your opinion that these concessions need liberalisation and if so will you indicate the nature and extent of such liberalisation?

Please give reasons in support of your answers.

VII. Curricula for training and standards for the grant of licences:

(a) The ICAO has laid down the curricula of training for the issue of a private pilot's licence. Do you consider those curricula adequate? If not, would you suggest any changes? If so, what changes you would like to suggest and for what reasons?

(b) What is the minimum, maximum and average period during which your organisation completed the training for private and commercial pilots' licenses during the last three years? What, in your opinion, should be a reasonable period for such training?

(c) The ICAO has laid down the standard for the issue of a private pilot's licence. Is it your opinion that that standard is adequate and meets the needs of private flying or do you think it necessary to strengthen it? If the latter kindly give details of the manner in which it requires to be strengthend. Please give reasons in support of your answer.

(d) Is it your opinion that the existing system in which tests and examinations are carried out for making recommendations for the issue of a private pilot's licence is adequate and satisfactory? If not, have you any suggestions to make for the improvement of the existing system or would you like that a new machinery for the purpose should be created? Please give full reasons for your answer.

VIII. Standardisation of trainer aircraft:

Is it desirable in your opinion to standardise the type of trainer for the purpose of training private pilots, giving preference wherever possible to the Indian product for that purpose? If your answer is in the affirmative, kindly state the type which you consider best, giving your reasons in support of the same. If you do not consider standardisation either necessary or desirable, please give your reasons in support of the view that you hold.

IX. Qualifications of instructional and maintenance staff:

(a) What are the qualifications of the instructional and maintenance staff which are employed at present by Flying Clubs for the training of private pilots? Is it your opinion that those qualifications are adequate? If not, have you any suggestions to make for the improvement of those qualifications and, if so, indicate the nature and extent of the proposed improvement.

(b) What is the scope of the instruction which is imparted at present by Flying Clubs for the training of private pilots?

(c) Is it your opinion that the scope of this instruction is adequate? If not, please state in detail the suggestions which you would like to make for improving the scope of instruction.

(d) Is it your opinion that the existing strength of the administrative, instructional and maintenance staff employed by the different Flying Clubs adequate having regard to the nature and extent of the work they have to perform? If not, have you any suggestions for making any alteration or change in the cadre of those staff?

X. Hours of Work:

(a) What is the minimum and the maximum number of hours which instructional staff in your organisation are required to fly consecutively at a time, during 24 consecucutive hours, during any period of 30 consecutive days and during any period of 12 consecutive months?

(b) What is the number of hours which each member of the instructional staff in your organisation has flown per month during the period of last two years?

(c) What, in your opinion, should be the maximum number of hours for which instructional staff may be permitted to fly consecutively at a time, during 24 consecutive hours, during any period of 30 consecutive days and during any period of 12 consecutive months?

XI. Scales of pay:

(a) What are the existing scales of remuneration to wit, pay and allowances and other benefits of instructional, maintenance and other paid staff employed by the Flying Clubs and other training institutions?

Is it your opinion that the existing scales of remuneration are fair, having regard to the duties which the staff have to perform? If not, have you any suggestions to make in regard to the existing scales of remuneration? Can you support your answers with reasons?

(c) What should, in your opinion, be the fair scales of pay of instructional, maintenance and other paid staff employed by the Flying Clubs and other training institutions for the training of private pilots?

XII. Obligation to Serve the State:

(a) Do you know if private pilots are under any obligation to serve the State in other countries? If so, please give the nature of such obligations and conditions under which they are to be fulfilled.

(b) Is it your opinion that private pilots in India should be under an obligation to serve the State? If so, in what manner and on what conditions?

XIII. Encouragement of private flying:

(a) Can you tell us what steps have been taken by the Central Government, the States, the Flying Clubs or other private organisations to kindle interest and rouse enthusiasm in the country in private flying and in connection with other aspects of Civil Aviation?

(b) Is it your opinion that the efforts of the Flying Clubs have encouraged interest in private flying in the country? If so, can you assess its nature and extent during the last five years?

(c) Can you tell us if any special efforts have been made either by the State or by the Flying Clubs to encourage students of colleges and technical institutions to take to private flying? If not, is it your opinion that both the State and the Flying Clubs should take active steps for rousing enthusiasm in the public in general and the students of colleges and technical institutions in particular for that purpose?

(d) If the answer to (c) above is in the affirmative, will you please state in some detail the proposals that you would like to make for the achievement of that object so that private flying in the country can receive encouragement and the spirit of airmindedness can be strengthened?

(e) Have you any observations to offer for kindling interest and rousing enthusiasm in private flying amongst the public in general and the students of colleges and technical institutions in particular, having regard to the resources in money and material that are likely to be available? Please give reasons in support of your answer.

XIV. Gliding and other media for encouraging air-mindedness:

(1) (a) Can you tell us if any facilities are provided either by the State or by the Gliding Clubs for encouraging gliding and soaring amongst the public? If so, please give a brief description of such facilities.

(b) Having the existing facilities for gliding roused the enthusiasm of the public during the last 5 years? If so, can you assess its nature and extent and give particulars as regards the number of glider pilots and instructors trained so far and the number of those who are under training at present?

(c) Can you give us the names of the Centres at which gliding is practised at present in India?

(d) Have any special efforts been made either by the State or by the Gliding Clubs to rouse enthusiasm and kindle interest in gliding among the students of colleges and technical institutions? If so, what is the nature and extent of these efforts and what has been their result?

(e) Can you give us any idea as to the details of the amount which an individual or any institution or club may have to spend in promoting gliding and encouraging gliding in the country?

(f) Is it your opinion that finance is the main obstacle to the encouragement and popularity of gliding in the country?

(g) What steps do you think should be taken to increase the popularity of gliding and rousing enthusiasm for it in the country and how the finance should be provided and who should provide the finance necessary for that purpose?

(2) Is it your opinion that aeromodelling should be encouraged in the country? If so, what steps should be taken for that purpose?

(3) Is it, in your opinion, necessary that there should be a central organisation to co-ordinate the activities of institutions in the country such as Flying Clubs, Gliding Association and Aeromodellers' Associations? If so, what steps should be taken to achieve that object?

(4) Do you recommend that technical and general knowledge on aviation should be introduced in educational institutions through the media of lessons in Science text books, lectures, films, visits to aerodromes and aircraft factories, etc.?

सत्यमेव जयते

APPENDIX 'B'

List of bodies and persons to whom copies of the Committee's Questionnaire were sent.

All members of Parliament.

Ministries of the Government of India:

The Secretary to the Government of India, Ministry of Communications, New Delhi.

The Secretary to the Government of India, Ministry of Finance, New Delhi.

The Secretary to the Government of India, Ministry of Defence, New Delhi.

The Secretary to the Government of India, Ministry of Commerce and Industries, New Delhi.

The Secretary to the Government of India, Ministry of Home Affairs and States, New Delhi.

The Cabinet Secretariat, Government of India, New Delhi.

The Secretary, Prime Minister's Secretariat, New Delhi.

The Secretary, Planning Commission, Government of India, New Delhi.

Central Govt. Deptts. and Offices.

The Director General of Posts and Telegraphs, Government of India, New Delhi.

The Secretary, Air Transport Licensing Board, Civil Aviation Department, Talkatora Road, New Delhi.

The Director General of Observations, Lodhi Road, New Delhi.

The Principal Information Officer, Government of India, New Delhi.

The Director General of Civil Aviation, Government of India, New Delhi.

The Air Transport Licensing Board.

The Air Headquarters, New Delhi.

Principal, C.A.T.C., Allahabad.

State Governments

The Chief Secretary to the Government of Madras, Madras.

The Chief Secretary to the Government of West Bengal, Calcutta.

The Chief Secretary to the Government of Bombay, Bombay.

The Chief Secretary to the Government of Uttar Pradesh, Lucknow (UP).

The Chief Secretary to the Government of Punjab, Simla, E. Punjab.

The Chief Secretary to the Government of Bihar, Patna (Bihar).

The Chief Secretary to the Government of Assam, Shillong (Assam).

सत्यमेव जयते

The Chief Secretary to the Government of Madhya Pradesh, Nagpur.

The Chief Secretary to the Government of Orrissa, Cuttack (Orissa).

The Chief Secretary to the Government of Jammu and Kashmir, Srinagar (Kashmir).

The Chief Secretary to the Government of Mysore, Bangalore.

The Chief Secretary to the Government of Rajasthan, Jaipur (Raj.).

The Chief Secretary to the Government of Travancore-Cochin, Trivendrum.

The Chief Secretary to the Government of Hyderabad, Hyderabad (Dn.).

The Chief Secretary to the Government of Madhya Bharat, Indore (Madhya Bharat).

The Chief Scceretary to the Government of Patiala and East Punjab States, Patiala (PEPSU).

The Chief Secretary to the Government of Surashtra, Rajkot (Surashtra).

The Chief Commissioners of—

Ajmer.
Andamans and Nicobar Islands, Port Blair.
Bilaspur, Bilaspur.
Bhopal, Bhopal.
Tripura, Agratala.
Delhi, Delhi.
Coorg, Mercara.
Himachal Pradesh, Simla.
Kutch, Bhuj.
Manipur, Imphal (Assam).
Vindhya Pradesh, Rewa.

The Deputy Commissioner of Labour (Administration) Bombay.

The Transport Commissioner U.P.

Air Transport Companies.

Air India International Ltd., New India Assurance Building, Mahatma Gandhi, Road, Bombay.

Air India Ltd., New India Assurance Building, Mahatma Gandhi Road, Bombay.

Indian National Airways Ltd., Scindia House Connaught Circus, New Delhi.

Air Services of India Ltd., Scindia House, Dougall Road, Ballard Estate Bombay.

Deccan Airways Ltd., Airport Begmpet, Hyderabad (Deccan).

Bharat Airways Ltd., Hindustan Building 4, Chittaranjan Avenue, Calcutta.

Dalmia Jain Airways Ltd., Scindia House, Connaught Circus, New Delhi.

Kalinga Airlines, Grand Hotel, Calcutta.

Air Survey Company of India Ltd., Jessore Road, Dum Dum.

Himalayan Aviation Ltd., 9A Esplanade East, Calcutta.

Indamar Company Ltd., 43 Tamarind Lane, 4th floor, Bombay.

Nalanda Airways Ltd., C/o Bihar Flying Club Ltd., Post Box No. 23, Patna.

Jamair Company Ltd., 23 Park Street, Calcutta.

Darbhanga Aviation, 42 Chowringhee, Calcutta.

Airways India Ltd., Airways House, P 37 Mission Row Extension, Calcutta—13.

Air life Co-operative Services Ltd., Beauron Chambers, 27/33 Medows Street, Fort, Bombay.

Aero Club of India.

The Secretary, Aero Club of India Ltd., C/o Tata Industries, P.O. Box No. 68 Connaught Circus, New Delhi.

Flying Clubs.

The Honorary Secretary,

- The Delhi Flying Club Limited, Civil Aerodrome, New Delhi.
- The Madras Flying Club Limited St. Thomas Mount, Madras.
- The Bihar Flying Club Ltd., Patna.
- The Bombay Flying Club Ltd., Juhu Aerodrome, Santacruz, Bombay.
- The Orissa Flying Club Ltd., Bhubaneswar Aerodrome, Bhubaneswar (Orissa).

The Managing Director, The Hind Provincial Flying Club Ltd., 3, Shahnajif Road, Lucknow (U.P.).

The Honorary Secretary, The Bengal Flying Club Ltd., Barrackpore Aerodrome, Barrackpore (Calcutta).

The Honorary Secretary, Northern India Flying Club, 13 R. A. Lines, Jullundur Cantt.

The Honorary Secretary, Madhya Pradesh Flying Club, Nagpur.

The Principal Government Flying Training School, Bangalore.

Gliding Clubs

The Delhi Gliding Club, New Delhi.

The Indian Gliding Association, Bombay.

Chambers of Commerce

The Secretary Federation of Indian Chambers of Commerce and Industry, New Delhi.

The Secretary Associated Chambers of Commerce of India, Calcutta.

The Punjab Chamber of Commerce, New Delhi.

Engineering Association of India, Calcutta.

Indian Merchants' Chamber, Bombay.

Indian Chamber of Commerce, 238, Netaji Subhas Road, Calcutta.

Bengal National Chamber of Commerce, P-11, Mission Road Extension, Calcutta.

Southern India Chamber of Commerce, Indian Chamber Building First Line Road, G.T., Madras.

Merchants' Chamber of U.P. Civil Lines, Cawnpore.

Assam Chambers of Commerce, Shillong.

Vice Chancellors and Registrars of Universities. Principals of colleges.

Technical Institutions

The Principal, Air Technical Training Institute, Dum Dum.

The Principal, Madras Institute of Technology, Madras.

The Principal, Indian Institute of Science, Bangalore.

The Principal, College of Aeronautical Services, Calcutta Air Port, Dum Dum.

Oil Companies

The Standard Vacuum Oil Company, Neville House, Nicol Road, Ballard Estate, Bombay.

The Burmah-Shell Oil Storage and Distributing Company of India Limited, Burmah-Shell House, Ballard Estate, Bombay.

The Caltex (India) Limited, Caltex House, 8 Ballard Road, Bombay.

Associations

Ahmedabad Millowners Association, Ahmedabad.

The Indian Society of Aeronautical Engineers, Dum Dum.

The Air India Employees Union, Bombay.

The Secretary, Air India Aero-Employees Federation, Bangalore.

The Secretary, Aeronautical Society of India, New Delhi.

The Secretary Air Transport Association of India, New Delhi.

The Indian Life Insurance Offices Association, New Delhi.

Aeromodellers Association Calcutta.

The President Indian Flying Crew Association, 48, Chowringhee Road, Calcutta.

The Secretary, Indian Pilots Guild, Santa Cruz, Bombay C/o Air India Ltd., New India Assurance Co. Building, Mahatma Gandhi Road, Bombay.

The Secretary, Air Transport Association of India, New Delhi.

The Secretary, Aeronautical Society of India, New Delhi.

Firms

The Manager, Greeves Cotton & Co. Ltd., 1 Forbes Street, Fort Bombay—1.

The British Aviation Insurance Co. Ltd., Hare Street, Calcutta.

The Editor, Indian Airways Magazine, "Mission Court" P-12 Mission Road Extension, Calcutta-1.

The Editor, Indian Sky Ways, United India Building, Feroze Shah Mehta Road, Bombay.

The Manager, Continental Freight & Transport, Bombay.

A. R. Haselar, Esqr., Assian Building Ballard Estate, Bombay.

R. K. Dundas (Eastern) Ltd., Jahangir Building, Fort, Bombay.

The General Manager Hindustan Aircraft Ltd., Bangalore.

Private Individuals

Shri M. N. Chawla, Chief Ground Engineer, Madhya Pradesh Flying Club, Nagpur.

W/Cdr Vaughan Fowler, Rt. A.M.I.E., Aeronautical and Aerodrome Consultant, Koelwadi, Junction Plot, Rajkot.

Shri S. Jagdish Chander, Chamakesery Chahi, Trivandrum.

Shri Narendra Wadhawan, 233, Lower Circular Road, Calcutta—30.

Shri S. Gupta, B.Sc. Flight Navigation, 38A Lake Place, Calcutta-30.

Shri A. Palaniswamy, Thadagon Road, Post Coimbatore.

Shri T. P. S. Devan, 44A Lake Place (2nd Floor) Calcutta-29.

Captain Rumney, C/o Bharat Airways, Calcutta.

Shri S. Sapra, C/o C. M. Sapra, Masjid Road, Jangpura, New Delhi.

Shri N. G. Kapikar 228 Sir Balachander Road Matunga (GIP) Bombay.

Shri A. F. Gutta, 638 Goshi Road, Pasi Colony, Dadar, Bombay.

Shri Chanderkant M. Bhatt Alindra Jal Matar *via* Kaira (Gujrat).

Shri M. R. Dhekney, M.A.M. Com, Ph.D., 358, Shanwar Peth, Khabuti Khana Road, Poona-2.

Shri V. Ramanathan, Cinematograph Section, Shri Jayachandrajendra, Occupational Institute, Bangalore.

Shri K. John Thomas, Kulatkhal House Maramon P.O. *via* Tiruvella, Travancore (South India).

Shri Ptanjita V. Mathuswamy, Aircraft Engineer, 20 Madhab Lane, Lansdown Market—P.O. Calcutta, 25.

Shri Manmohan Singh Khurana, c/o Satnam Foundry, G.T. Road, Batala.

Shri K. S. Natrajan, 45 Gilman Street, Tirpur, R.S.

Shri B. D. Rao, c/o Shri A. R. Rao, Sangiri Sadan, 171 Girgaon Road, Bombay.

Shri K. K. Arora, 36, Beharilal Building, Railway Road, Ambala Cantt.

Baliramsingh L. Patil (Mukhtyar) Pleader, Dhulia, West Khandesh.

The Editor, Kaiser-i-Hind, Kaiser-Chamber, Town Hal Road, Fort, Bombay.

Shri S. N. Demble, 4/39 W.E.A., Qarol Bagh, Delhi.

Shri G. R. Chopra, 26-A, Elgin Road, Allahabad.

A. C. P. Wadia, The Dell, 22 The Nepear Road, Malabar Hill, Bombay-6.

Sq/Ldr. N. F. O. Carey, 8 Kahun Road, Poona.

Shri K. V. Mehta, St. Xavier's Road, Opp. Church Road, Vile Parle Bombay-24.

Shri P. S. Taskar, Gokhale Road, Thana, Bombay.

Shri S. Sundra, Electronics Ltd., New Delhi.

Shri Aziz H. Doctor, c/o Shri Hussain A. Doctor, 135 Zohra Cottage, 8th Road, Khar, Bombay-21.

Shri L. L. Mulchandani Block No. 1, House No. 1, Sindhi Colony 706/707 Kabrak Road, Dadar, Bombay.

Shri C. D. Charles, Champadali Cross Road, P.O. Barasat, 24 Parganas, West Bengal.

Raja Himanshu Dhar Singh of Tekri Raj, Tekari House, 17/3 Outram Road, Lucknow.

Shri W. F. Roberts, Hind Provincial Flying Club, Lucknow.

Shri P. B. Nichols, c/o Willinamson Mager & Co., 4, Mengo Lane, Calcutta.

Shri A. P. Walker, Itakhooli Tea Estate, Dimakusi, P.O. Assam.

Captain Killick, Kilburn & Co. Ltd., 4 Failie Place, Calcutta.

M. Vlasto Esq., Ralis (India) Ltd. 2 Hare Street, Calcutta.

Shri K. S. Kambatta, P.O. Box 416, Bombay.

Shri M. R. Shervani, 28, South Road, Allahabad.

Shri Tirandaz K. Irani, 30 Mistry Building, Sheaker Road, Bombay.

Shri K. S. Illop, Kolasy House, Allor P.O. *via* Wadakanchery.

Private Secy. to H.H. Shri Satguru Partap Singh Ji Shri Jiwan, Jiwan Nagar, District Hissar.

Shri H. V. Shah, Post Box 225, Madras.

Shri Brij Narain, 2 Raj Narain Road, Civil Lines, Delhi.

Shri Raj Bans Bahadur, 5, Raj Narain Road, Delhi.

Shri Z. R. Irani, 19-A Alipore Road, Civil Lines, Delhi.

Shri Sham Sunder, 9, Curzon Road, New Delhi.

Sqr/Ldr O. P. Bhardwaj 11-H King Edward Road Mess, New Delhi.

Shri Raghbans Bahadur, 8, Jumna Road, Civil Lines, Delhi.

Shri Ram Beharilal, 9, Babar Lane, New Delhi.

Shri G. Floate, Chief Engineer, Delhi Flying Club, Delhi.

Shri M. C. Bhargava, Pilot Instructor, Delhi Flying Club, Delhi.

Mrs. E. M. M. Young, Panitola, P.O. Assam, India.

Shri V. P. Mallik, Hind Provincial Flying Club, Lucknow.

Shri Sinclair, Murray & Co. 6, Royal Exchange Place, Calcutta.

Shri J. P. Koszarek, General Manager, Indamer Co. Ltd., Juhu Aerodrome, Bombay-23.

Shri B. S. Bucknall, Peremboo Colly Estate, Chethalli, P.O. N. Coorg, S. India.

Sq./Ldr D. S. Kajithia, Fairweather, Muzaffarpur, Bihar.

Shri Jagjit Singh, Chanwala Parms, P.O. Afuslgarh, District Bijnor.

Shri O. P. Sanghi, Nashaiman, Jodhpur.

Shri B. O. Llewelyn, Zondoo Tea Estate, Nagarkata, P.O. Dooars.

Shri K. N. Srinivasan, B.A. Himanshu Village II Main Road Matteswar, Bangalore-3.

Shri Rammohan, Madhya Bharat Flying Club, Indore.

Capt. C. P. Narayan P.37 Mission Row Extension, Calcutta.

Capt. Jal Singh, Mayurbhanj House, Mayurbhanj Road, Kidderpore, Calcutta.

Shri J. O. Gupta, c/o Shri Har Dayal Gupta, Pleader Collectorate, Aligarh.

Shri R. P. Singh, M.L.C., Kursala Estate, P.O. Ajodhya Ganj.

Shri D. K. Malvaya, 77, Stephen House, Calcutta.

Shri A. K. Mclennan, State Pilot, Newab of Bhopal.

Shri J. W. Ocllins Joyhing North Lakhimpur, Assam.

Shri B. H. Ghose, Kalinga Airways, Grand Hotel, Calcutta.

Shri S. B. Mathur, H.P.F.C., Allahabad.

Shri G. S. Brar, Chief Engineer (AV) to H.H. the Raja Sahib Bahadur of Faridkot.

Shri G. B. Mehta, Chief Pilot, Rajasthan, Jaipur.

Shri S. N. Singha, Under Secretary Government of Bihar, Patna.

सत्यमेव जयते

APPENDIX 'C'

List of Memoranda received by the Committee on training of Civil Air Pilots.

Air Line Companies

1. Air India Ltd.
2. Air Services of India.
3. Airways India Ltd.
4. Bharat Airways Ltd.
5. Jamair & Co., Ltd.
6. Indian National Airways Ltd.
7. B.O.A.C.

Flying and Gliding Clubs

8. Madhya Bharat Flying Club, Indore.
9. Hind Provincial Flying Club, Lucknow.
10. Northern India Flying Club, Jullundur Cantt.
11. Madhya Pradesh Flying Club, Nagpur.
12. Bengal Flying Club, Barrackpore.
13. Delhi Flying Club, New Delhi.
14. Delhi Gliding Club, New Delhi.
15. Government Flying Training School, Bangalore.
16. Indian Gliding Association, Bombay.
17. Bihar Flying Club, Patna.
18. Madras Flying Club, Madras.
19. Aero Club of India, New Delhi.

सत्यमेव जयते

Associations

20. The Aeronautical Society of India.
21. Indian Society of Aeronautical Engineers.
22. Federation of Indian Chambers of Commerce & Industry, New Delhi.
23. All India Aeromodellers Association.
24. The Southern India Chambers of Commerce, Madras.

Firms

25. Greaves Cotton & Co., Ltd., Bombay.
26. British Aviation Insurance Co., Ltd., Calcutta.
27. M/s. R. K. Dundas, Bombay.
28. A. R. Hasler Ltd., Bombay.
29. Indian Skyways Ltd., Bombay.
30. Burma Shell & Co.
31. Shaways (India) Madras.

Governments

32. The Government of Punjab.
33. The Government of Travancore and Cochin.
34. The Government of Bombay.
35. The Government of Madras.
36. The Government of Madhya Pradesh.

Individuals

37. Shri G. R. Chopra, 17, Clive Road, Allahabad.
38. Shri N. G. Koppikar, Vinod Villa, 228, Sir Balchandra Road, Bombay.
39. Shri A. P. Walker, Tinsukia, Assam.
40. Shri R. G. Patwardhan, c/o Hind Provincial Flying Club, Lucknow.
41. Shri A. C. P. Wadia, Bombay.
42. Shri Gutta, Bombay.
43. Shri Jagdish Chandran, Trivandrum.
44. Shri Chandrakant M. Bhatt, Matar, Gujrat.

Private Training Institutions

45. Air Technical Training Institute, Dum Dum.

Educational Institutions

46. Indian Institute of Science, Bangalore.
47. S. K. C. G. College, Parlakhamedi, Orissa.

Central Government Offices

48. Director General of Civil Aviation.
49. Civil Aviation Training Centre, Allahabad.
50. Air Headquarters.

Other Memoranda and Representations received by the Committee

1. Representation from Trainees of the Madras Flying Club.
2. Representation from Trainees of the Bihar Flying Club.
3. Representation from Trainees of the Bombay Flying Club.
4. Representation from the Indian Aviation Guild, New Delhi.
5. Memorandum from the Indian Flying Crew Association, Calcutta.
6. Letter from Shri A. F. Gutta, Member, Bombay Flying Club.
7. Letter from Shri Milagres F. Dias, Member, Bombay Flying Club.
8. Memorandum from the Indian Gliding Association.
9. Memorandum from Gr. Capt. Harjinder Singh.
10. Memorandum from the Areo Club of India.

APPENDIX 'D'

List of Foreign Embassies who supplied information on training facilities.

1. High Commissioner for Canada in New Delhi.
2. The U.S. Embassy in New Delhi.
3. The Netherlands Government (through the Chairman).
4. The Government of the U.K. (through the Chairman).
5. The Royal Netherlands Embassy, New Delhi.
6. The Royal Egyptian Embassy, New Delhi.
7. The Belgian Embassy, New Delhi.
8. The High Commissioner for Australia, New Delhi.
9. The Swedish Legation, New Delhi.

सत्यमेव जयते

APPENDIX 'E'

List of Bodies and Persons who gave Oral Evidence Before the Committee

S.No.	Body examined.	Names of Representatives.	Date.	Place.
1	Civil Aviation Training Centre, Allahabad.	Shri R. N. Kathju, Principal.	11-7-52	CATC Allahabad.
2	Do.	Shri Dhargalkar, Sr. Pilot Instructor.	Do.	Do.
3	Do.	Shri Chaves, Sr. Pilot Instructor.	Do.	Do.
4	Hind Provl. Flying Club.	Raja Basheshwar Dayal Seth, Vice-President.	12-7-52	Lucknow, Carlton Hotel.
5	Do.	Shri Patwardhan, Superintending Pilot Instructor.	Do.	Do.
6	Do.	Group Captain Harjinder Singh, President, Kanpur Branch.	Do.	Civil Aerodrome, Kanpur.
7	Northern India Flying Club.	Shri A. A. Rollo, Chief Pilot Instructor.	13-7-52	Northern India Flying Club, Jullundur.
8	Do.	Shri A. L. Fletcher, ICS, President.	Do.	Do.
9	National Cadet Corps.	Col. Virendra Singh, Director.	14-7-52	A. T. L. B. Halt, Office of the D. G. C. A., New Delhi.
10	Delhi Flying Club.	Shri Jaipal Singh, Chairman.	Do.	Delhi Flying Club, New Delhi.
11	Do.	Shri Bhagat B. Lal, Secretary & Chief Pilot Instructor.	Do.	A. T. L. B. Hall, Office of the D. G. C. A., New Delhi.
12	Delhi Gliding Club.	Major General Choudhuri, President.	15-7-52	Do.
13	Do.	Dr. P. Nilakantan, Hony. Secy.	Do.	Do.
14	Indian National Airways.	Shri J. M. Gupta, Managing Director.	Do.	Do.
15	Air Headquarters.	S/Ldr. Shitoley, Pilot Instructor, In-charge of Trg.	17-7-52	Do.
16	Air Headquarters.	A/Cdr. Engineer	Do.	Do.
17	Civil Aviation Department.	Shri K. M. Raha Offg. D. G. C. A.	Do.	Do.

1	2	3	4	5
18	Delhi Gliding Club	Dr. E. Zipkes, Director, Road Research Institute & Hony. Instructor.	17-7-52	A. T. L.B. Hall. Office of the D. G. C. A., New Delhi.
19	Bharat Airways .	Shri Kejriwal, Administrative Manager.	25-7-52	Bengal National Chambers, Calcutta.
20	Jamair Company .	Captain E. N. Jopps, Chief Pilot.	Do.	Do.
21	Airways India .	Captain Long . .	Do.	Do.
22	Bengal Flying Club.	Shri S. P. Ray, Jt. Hony. Secretary.	26-7-52	Do.
23	Do.	Shri Bose, Chief Pilot Instructor.	Do.	Do.
24	All India Aero-Modellers Assn.	Shri K. L. Roy, Hony. Secretary.	Do.	Do.
25	Do.	Shri Ewing . . .	Do.	Do.
26	Bihar Flying Club .	Shri N. R. Gogte, Chief Pilot Instructor.	27-7-52	Do.
27	Indian Aircrew Association, Calcutta.	Shri I. Roy Chowdhury, General Secretary.	28-7-52	Do.
28	Do.	Dr. N. Sarkar, President	Do	Do.
29	Private . . .	Shri N. C. Ghosh, Director General of Transport, West Bengal Govt.	Do.	Do.
30	Madras Flying Club	Shri K. Narayanan Nair, Chairman.	30-7-52	Madras Flying Club.
31	Do.	Shri M. I. Khan, Chief Pilot Instructor.	Do.	Do.
32	Government of Madras	Shri M. Gopala Menon, ICS, Deputy Secretary P. W. D.	Do.	Do.
33	Government of Mysore	Hon. Shri Siddavirappa, Home Minister, Govt. of Mysore.	31-7-52	G. F. T. S. Jakkur Aerodrome, Bangalore.
34	Government Flying Training School.	Shri J. Mathai, Principal and Chief Pilot Instructor.	Do.	Do.
35	Private . . .	Shri P. H. Davy, Indian Representative, A. V. Roe & Co.	1-8-52	West End Hotel, Bangalore.
36	Private . . .	Shri M. V. Namjoshi, Test Pilot Hindustan Aircraft Ltd., Bangalore.	1-8-52	West End Hotel, Bangalore.

1	2	3	4	5
37	Bombay Flying Club	Shri A. C. P. Wadia, President.	11-8-52	Indian Merchants Chamber, Bombay.
38	Air India Ltd., Bombay.	Shri A. C. Gazder, Operations Manager.	12-8-52	Do.
39	Civil Aviation Department.	Shri G. C. Arya, Chief Inspector of Flying.	12-8-52	Do.
40	Bombay Flying Club	Shri M. J. B. Manackji, Member, Sub-Committee of Management.	13-8-52	Aerodrome, Juhu, Bombay.
41	Do.	Shri J. N. Gazdar	Do.	Do.
42	Do.	Shri J. C. Puri, Member, Sub-Committee of Management.	14-8-52	Indian Merchants Chamber, Bombay.
43	Deccan Airways	Capt. Huilgol, Chief Pilot.	16-8-52	Do.
44	Air Services of India	Capt. Cariappa.	Do.	Do.
45	Indian Gliding Association, Poona.	Shri P. M. Kabali, Chairman.	17-8-52	Poona Club, Poona.
46	Do.	Shri F. H. Irani, Chief Instructor.	Do.	Do.
47	Do.	Major Bockett of the I. E. M. E.	Do.	Do.
48	Air Headquarters	Air Vice-Marshal Mukerjee, Acting C-in-C.	18-8-52	Indian Merchants Chamber, Bombay.
49	Madhya Pradesh Flying Club.	Shri K. K. Thakur, Hony. Secretary.	22-8-52	Madhya Pradesh Flying Club, Nagpur.
50	Do.	Shri Naralkar, Chief Pilot Instructor.	Do.	Do.
51	Some Flying Clubs	Group Capt. Harjindar Singh.	26-8-52	Indian Merchants Chamber, Bombay.
52	Civil Aviation Department.	Mr. G. C. Arya, Chief Instructor Flying.	15-9-52	Do.
53	Do.	Do.	18-9-52	Do.
54	Bombay Flying Club	Mr. J. B. Maneckji, Member, Sub-Committee of Management.	24-9-52	Do.

INFORMAL DISCUSSIONS

H. E. Shri Sri Prakasa, Governor of Madras.
H. E. Shri Morarji R. Desai, Chief Minister, Government of Bombay.
Shri J. R. D. Tata.
Pandit Hirdaynath Kunzru.

APPENDIX 'F'

PROPOSED RULES FOR LICENSING OF CIVIL AIR PILOTS

The following Rules will replace the Rules embodied in Part V Chapter II and Schedule II Chapter II of the Indian Aircraft Rules, 1937, so far as they concern pilot's licences.

सत्यमेव जयते

PART V—PERSONNEL OF AIRCRAFT

Definitions and Interpretations.—In these Rules, unless there is anything repugnant in the subject or context:—

"*Aerial work Aircraft*" means an aircraft, not doing a public transport, which is being flown for payment required to be made to the operator of the aircraft, being a payment for the flight or in respect of the purpose for which the flight is carried out, and in reference to a serial work aircraft of any class shall be construed accordingly;

"*Certificate of Airworthiness*" includes any flight manual issued and required to be carried with the Certificate under the law of the country in which the certificate is issued;

"*Class*" in relation to aircraft means class in accordance with the table of general classification of aircraft contained in Schedule......;

"*Flying Machine*" means an aircraft heavier than air having means of mechanical propulsion;

"*Glider*" means an aircraft heavier than air not fixed to the ground and having no means of mechanical propulsion but having means of directional control;

"*Goods*" includes means mails and animals;

"*Night*" means, except as specified below, the hours of darkness between sunset and sunrise or much other period between sunset and sunrise as may be prescribed by the appropriate authority;

Provided that it shall be deemed to be night when, between hours of sunset and sunrise, any unlighted aircraft of other unlighted prominent object cannot be clearly seen at a distance of at least 5000 yards;

In respect, however, of the requirements in Schedule relating to the carrying out of the particular flying test and the production of evidence as to flying experience, "Night" means the period commencing at the end of one hours after sunset and one hour before sunrise.

"*Operating Crew*" in relation to an aircraft includes pilot Flight Engineer and Flight Radio Operator;

"*Person in Command*" in relation to an Aircraft means, in a case where the person other than a pilot-in-charge is in command, former person and in no other case the pilot in-charge;

"*Personnel*" in relation to an aircraft includes the operating crew and other persons having any duties to perform in the aircraft;

"*Private aircraft*" means an aircraft other than a public transport or aerial work aircraft, and in reference to a private aircraft of any class shall be construed accordingly;

"*Privilege*" means right conferred by licence entitling the holder of the licence to perform any function to which the licence relates;

"Public Transport Aircraft" means:—

(a) an aircraft carrying pasengers or goods for hire or reward;

(b) every aircraft comprised in a combination of aircraft whether an aircraft is towing other aircraft, if any such aircraft, either towing or being towed is carrying passengers or goods for hire or reward;

(c) in case where carriage of passengers or goods is effected by an Air Transport undertaking—

(i) the aircraft carrying the passengers or goods, or;

(ii) if the passengers or goods are carried in any aircraft comprised in such a combination as aforesaid every aircraft either towing or being towed comprises everything, whether such carriage is for hire or reward or not, save in a case where every passenger carried is a person in control or in the employment of the undertaking and any goods carried consisted entirely of articles belonging to the undertaking; and in reference to a public transport aircraft of any class shall be construed accirdingly;

"Second Pilot" means a pilot duly licenced under the provisions of the Rules and performing piloting duties under the direction of the pilot-in-charge of the aircraft.

PERSONNEL TO BE CARRIED IN FLYING MACHINES

Subject to the provisions of Rule 6, every flying machine registered in India, shall comply with the following requirements in respect of personnel which it carries and by which it is operated:—

Minimum Crew for any Flight.—On all flights an aircraft shall have on board for the purpose of acting as members of the operating crew, the number and description of persons specified as minimum operating crew, for that aircraft in its certificate of airworthiness.

Carriage of additional pilot.—When an aircraft carries two or more pilots as members of the operating crew, one of them shall, before the flight commences, be designated by the operator of the aircraft as the Senior Pilot and the other pilot shall act only under his directions.

(2) A public transport flying machine having maximum total weight authorised of more than 22,500 lbs. and flying in circumstances which require it to comply with the Instrument Flight Rules given in these Rules when departing from or arriving at an aerodrome shall carry, to act in the capacity of a second pilot, and for that particular purpose be assisting the senior pilot during such departure and landing as aforesaid, a person who is the holder of Commercial, Senior Commercial or Airline Transport Pilot's licence (Flying machines) including Instrument Rating.

Student Pilot.—Every flying machine flown by a person under instruction or for undergoing test for the purpose of obtaining or renewing a Pilot's Licence or Rating shall be flown by a person holding either a Student Pilot's licence, a Commercial Pilot's Licence, a Senior Commercial Pilot's licence or an Airline Transport Pilot's Licence

Private Pilot.—Every flying machine not engaged in public transport or aerial work shall be flown by a person holding either a private pilot's licence, a Commercial Pilot's licence, a Senior Commercial Pilot's Licence or an Airline Transport Pilot's Licence.

Provided that a flying machine carrying passengers, other than a person licenced to give instructions in flying during night shall not be flown by a person holding only a Private Pilot's Licence unless a Night Rating is endorsed on such licence.

Commercial Pilot.—Every flying machine engaged in aerial work shall be flown by a person holding either a Commercial Pilot's Licence, a Senior Commercial Pilot's Licence or an Airline Transport Pilot's Licence:

Provided that in case of a flying machine engaged in public transport, if the flying machine has a gross weight not exceeding 12,500 lbs, the same may be flown under V.F.R. conditions by a person holding a Commercial Pilot's Licence who has the class and type of flying machine endorsed on his licence for that purpose; and under I.F.R. conditions by a person holding such a Commercial Pilot's Licence and in addition Instrument Rating.

Provided further that a person holding a Commercial Pilot's Licence may act as a co-pilot in a flying machine engaged in public transport, the class and type of flying machine having been endorsed on his licence for that purpose.

Senior Commercial Pilot.—Every flying machine having a gross weight not exceeding 15,000 lbs, and engaged on public transport shall be operated by a person holding either a senior commercial Pilot's Licence or an Airline Transport Pilot's Licence.

Every flying machine having a gross weight not exceeding 30,000 lbs. and engaged on public transport but not carrying passengers shall be operated by person holding either a Senior Commercial Pilot's Licence or an Airline Transport Pilot's Licence.

Provided that in case of a flying machine engaged on schedule air transport service the same may be operated by a person holding a Senior Commercial Pilot's Licence in the capacity of a co-pilot if the flying machine of the type and class is endorsed on his licence.

Airline Transport Pilot.—Every flying machine operated on schedule air transport service shall be flown by a person holding an Airline Transport Pilot's Licence.

40. **Licensing Authority.**—The authority by which the licences referred in rule 38 may be granted, renewed or varied shall be the Central Government which may withold the grant or renewal of a licence if for any reason it considers it desirable to do so.

41. **Disqualification from holding or obtaining a licence.**—(1) Where the licensing authority is satisfied, after giving him an opportunity of being heard, that any person—

(a) is a habitual criminal or is habitually intemperate in the use of alcohol or is an addict of norcoties, drugs, etc., or

(b) is using, has used, or is about to use an aircraft in the commission of a cognizable offence or in contravention of these rules, or

(c) has by his previous conduct as member of the crew of an aircraft, shown that he is irresponsible or is likely to endanger the safety of the aircraft or any person or thing carried therein, or of other aircraft or of persons or things on the ground,

the licensing authority may, for reasons to be recorded in writing, make an order disqualifying that person for a specified period from holding or obtaining a licence.

(2) Upon the issue of any order under sub-rule (2), the person affected, if he is the holder of a licence, shall forthwith surrender his licence to the licensing authority, if the licence has not already been surrendered, and the licensing authority shall keep it until the disqualification has expired or has been removed.

42. **Signature of licence holder.**—On the issue of a licence to an applicant he shall forthwith sign his name on the licence as the holder thereof with his usual signature.

43. **Proof of competency.**—Applicants for licences and ratings shall be required to produce proof of having the following experience and having passed the following tests and examinations:—

(1) *Student Pilot's Licence.*—Technical and medical examination knowledge as laid down in Schedule II.

(2) *Private Pilot's Licence.*—Flying experience, flying test technical examination and medical examination as laid down in Schedule II.

Provided that for the purpose of grant of this licence—

(a) A person who is qualified as a pilot in the Indian Air Force and who produces evidence to show that he has the required flying experience may be exempted from the flying tests.

(b) A person to whom a licence of correspondence or higher class has been granted by the competent authority of a Contracting State may be exempted from all or any of the flying tests and from such part of the technical examination as the Central Government may decide, and if he is the holder of a current licence be exempted from the medical examination.

(c) A licence may be issued for all types of flying machines upto a certain maximum total weight or weight or endorsed for one or more types of flying machines only.

(3) *Commercial Pilot's Licence.*—Flying experience flying tests, technical examination and medical examination as laid down in Schedule II.

Provided that for the purpose of grant of this licence—

(a) A person who is qualified as a pilot in the Indian Air Force and who produces evidence to show that he has the required flying experience may be exempted from the flying tests.

(b) A person to whom a licence of corresponding class has been granted by the competent authority by a Contracting State may be exempted from all or any of the flying tests and from all or any of the subjects, of the technical examination, excepting on Legislation, at the discretion of the Central Government and may, if he is the holder of a current licence, be exempted from the medical examination for a period of six months from the date of the last medical examination.

(c) The requirements in respect of the flying experience may be varied by the Central Government in a case where the flying experience of the applicant is in the opinion of the Central Government substantially equivalent to the flying experience specified in Schedule II.

(d) Such licence may be issued for such types of flying machines only when a candidate has produced proof of his competence to fly either as a pilot or as a co-pilot, provided that for operation on other than Schedule Air Transport Services a licence may be issued for or all types of flying machines upto a total maximum weight.

(4) *Senior Commercial Pilot's Licence.*—Flying experience, flying tests, technical examination and medical examination as laid down in Schedule II.

Provided that for the purpose of grant of this licence.—

(a) A person who is qualified as a pilot in the Indian Air Force and who produces evidence to show that he has the required flying experience may be exempted from the flying tests.

(b) A person to whom a licence of the corresponding class has been granted by the competent authority of a Contracting State may be exempted from all or any of the flying tests and from all or any of the subjects of the technical examination, excepting on Legislation, at the discretion of the Central Government and may, if he is the holder of a current licence, be exempted from the medical examination for a period of six months from the date of the last medical examination.

(c) The requirement in respect of flying experience may be carried by the Central Government in a case where the Flying experience of the applicant is in the opinion of the Central Government substantially equivalent to the flying experience specified in Schedule II.

(d) Such licence may be issued for such types of flying machines only when a candidate has produced proof of his competence to fly either as a pilot or as a co-pilot, provided that for operation on other than Scheduled Air Transport Services a licence may be issued for or all types of flying machines upto a total maximum weight.

(5) *Airline Transport Pilot's licence.*—Flying experience, flying tests, technical examination and medical examination as laid down in Schedule II.

Provided that for the purposes of grant of this licence—

(a) A person who is qualified as a pilot in the Indian Air Force and who produces evidence to show that he has the required flying experience may be exempted from the flying tests.

(b) A person to whom a licence of the corresponding class has been granted by the competent authority of a Contracting State may be exempted from all or any of the flying tests and from all or any of the subjects of the technical examination excepting on Legislation, at the discretion of the Central Government and may, if he is the holder of a current licence, be exempted from the medical examination for a period of six months from the date of the last medical examination.

(c) The requirement in respect of flying experience may be varied by the Central Government in case where the flying experience of the applicant is in the opinion of the Central Government substantially equivalent to the flying experience specified in Schedule II.

(d) Such licence may be issued for such types of flying machines only when a candidate has produced proof of his competence to fly either as a pilot or as a co-pilot, provided that for operation on other than scheduled air transport services a licence may be issued for any or all types of flying machines up to a total maximum weight.

(6) *Night Rating.*—Flying experience as laid down in Schedule II.

सत्यमेव जयते

(7) *Instrument Rating.*—Flying experience, flying tests and technical examination as laid down in section G of Schedule II.

(8) *Flight Instructor's Rating.*—Flying experience, flying tests and technical examination as laid down in Schedule II.

(9) *Assistant flight Instructor's Rating.*—Flying experience, flying tests and technical examination as laid down in Schedule II.

(1) The holder of a licence shall, in any one of the following circumstances, be required to undergo a fresh medical examination, wholly or in part, and to produce a certificate of medical fitness as a condition of the licence remaining valid, namely:—

(i) in the event of sickness involving incapacity for a period of twenty days or more for the work for which he is licensed; or

(ii) in the event of an accident occurring otherwise than during the performances of such work and involving the same incapacity; or

(iii) in the event of an accident occurring during the performance of such work and involving injury.

45. **Pilot not to fly for more than 125 hours during any period of 30 consecutive days.**—No pilot of a flying machine shall, in his capacity as such pilot, fly for more than 125 hours during any period of 30 consecutive days.

Explanation.—For the purpose of this rule, the flying time of a pilot either as solo pilot or pilot-in-command of an aircraft will be counted fully and the flying time of a pilot engaged as co-pilot or supernumerary pilot will be counted at 80 per cent of the flight time.

46. **Renewal of licences and ratings.**—The licences or ratings may be renewed for the periods specified in rule 44 on production of proof of recent flying experience and after passing of the medical examination laid down in Schedule II:

Provided that in case of a member of the operating crew of an aircraft who is on duty in a region distant from official medical centres, the medical examination may at the discretion of the Central Government be deferred for two consecutive periods of two months each on condition that such a member obtains locally in each case and forwards to the Director General a favourable medical certificate furnished by a medical practitioner who possesses the qualifications entitling him to inclusion in the Indian Medical Register:

Provided further that the holder of every licence or rating may be required before renewal of the licence or rating satisfy all or any of the requirements which are applicable for the first grant of such licence or rating:

Provided further that in the case of a pilot's licence the Central Government may, when renewing the licence, restrict the types of aircraft for which the licence is endorsed to those on which it is satisfied that the holder of the licence has had recent reasonable flying experience.

47. **Aircraft not registered in India.**—An aircraft not registered in India shall carry the personnel prescribed by the laws of the State in which it is registered, and such personnel shall be licenced in accordance with the laws of that State.

48. **Validation of foreign licences.**—When a licence has been granted by the duly appointed competent authority in any Contracting State or any other State and is for the time being in force the Central Government may, subject to such conditions and limitations and for such period as it shall think fit, confer on such licence the same validity for the purpose of flying aircraft registered in India as if it had been granted under these rules, and a licence so validated shall be subject to the provisions of rule 19.

49. **Fees.**—(1) The following fees shall be payable in respect of issue, validation or renewal of licences or ratings or the issue of

duplicate licences and the tests and examinations laid down in rules 43, 44 and 46:—

Description of Licences.	Flying tests.	Technical examination.	Medical examination.		Issue, validation or renewal of Licence.
			For initial issue of licence.	For renewal of licence or as required under.	
Student Pilot's Licence.	..	5	16	8	5
Private Pilot's Licence.	5	5	16	8	5
Commercial Pilot's Licence	10	10	32	16	10
Senior Commercial Pilot's Licence	50	50	32	16	10
Airline Transport Pilot's Licence	100	100	32	16	10
Night Rating	..	..	..	..	5
Flight Instructor's Rating	50	50	..	..	10
Assistant Flight Instructor's Rating.	20	20	..	..	5
Instrument Rating.	50	50	..	..	5

Note.—For all flying tests the candidate shall be required to provide the aircraft and pay all charges incurred thereby, and in addition pay the fees given above, provided that where an examiner is asked by the Central Government to carry out the tests, he shall be paid remuneration at the rate of Rs. 10 for each hour or part of an hour flown, or the fee for flying tests whichever is less.

(2) An application for any licence or rating or for the renewal or validation of any licence or rating shall be accompanied by a treasury receipt for the sum necessary to cover all the fees payable.

(3) An application for any technical examination or flying test of any licence or rating shall be accompanied by a treasury receipt for the sum necessary to cover all the fees payable for such examination or examinations and for such flying tests.

(4) When in any case the licence is not issued, renewed or validated the Central Government may refund to the applicant such proportion of the sum paid as represents the cost of any examination not carried out or any licence not issued.

STUDENT PILOT'S LICENCE

(FLYING MACHINES)

Age of Applicant and Period of Licence.—(1) An applicant for the grant of a licence must be not less than 17 years of age.

(2) The period for which a licence may [subject as provided by paragraph (d) in the conditions of licence] remain in force, following either the grant or any renewal thereof, shall not exceed—

(a) 24 months if the applicant is less than 35 years of age; or

(b) 12 months if the applicant is 35 years of age or more.

Medical Requirements.—(1) An applicant for the grant or renewal of a licence shall be required to—

(a) satisfy the requirements as to mental and physical fitness specified in Schedule II of these Rules for the grant of Private Pilot's Licence (Flying Machines); and

(b) furnish to the medical examiner a declaration, signed by him, stating whether he has previously undergone such medical examination, and, if so, where, when and with what result. A false declaration may entail the cancellation of any licence granted or renewed as a result of the examination.

(2) The holder of a licence shall comply with the requirements prescribed in the Indian Aircraft Rules.

Conditions of Licence—

A licence—

(a) shall entitle the holder thereof, subject to the provisions of sub-paragraphs (c) and (d) in paragraph (1) of "Practice Flights" to carry out flights as pilot in charge of a flying machine only for the purpose of becoming qualified for the grant or renewal of flying machine pilot's licence;

(b) shall be valid only for flights within the Indian Republic;

(c) shall be subject to such further conditions as may be attached to or endorsed on the licence; and

(d) shall lapse upon the grant to the holder of a flying machine pilot's licence.

PRACTICE FLIGHTS

A person who is not the holder of a pilot's licence to fly flying machines for public transport or aerial work gliders may fly within the Indian Republic as Pilot in charge of a flying machine or a public transport or aerial work glider, as the case may be, for the purpose of becoming qualified for the grant or renewal of such a licence, subject to the conditions specified in paragraphs (1) and (2) given below.

(1) **Flying Machines.**—

(a) He shall be the holder of a Student Pilot's Licence granted under these Rules;

(b) He must be not less than 17 years of age;

(c) No other person, except a person required under these Rules to be carried as a member of the operating crew, shall be carried in the flying machine; and

(d) Each flight shall be carried out in accordance with instructions given by a person entitled by virtue of a rating included in his pilot's licence to give instructions in flying machines and shall terminate at the aerodrome of departure. Intermediate practice landings may, however, in accordance with such instructions be made elsewhere than at the aerodrome of departure.

(2) **Public Transport or Aerial Work Gliders.**—

(a) He must be not less than 16 years of age. A person, however, who is not less than 14 years of age, may carry out flights on a glider not towed by flying machine or on a towed glider of which the maximum total weight authorised does not exceed 1,250 lbs. provided that each such flight is carried out wholly within 3 nautical miles from a certified point;

(b) No other person, except a person required under these Rules to be carried as a member of the operating crew, shall be carried in the glider;

(c) In the case of a glider of which the maximum total weight authorised exceeds 1,250 lbs. which in the course of flight is towed by a flying machine and released therefrom, each flight shall be carried out in accordance with instructions given by a person entitled by virtue of a rating included in his pilot's licence to give instructions for flying gliders towed by flying machines, and shall terminate either at the aerodrome of departure or, with the consent of such person at a place within 3 nautical miles therefrom.

Flights to qualify for Extension of Licences.— A person who is the holder of a Pilot's licence to fly flying machines or gliders, may fly within the Indian Republic as pilot in charge of a flying machine or glider, as the case may be, of a class or type other than a class or type to which the licence relates, for the purpose of qualifying for an extension of the licence, to include such class or type of flying machine or glider.

Provided that, when he is so flying, no other person shall be carried in the flying machine or glider except—

(a) person required under these Rules to be carried as a member of the operating crew of the flying machine or glider; or

(b) if the pilot in charge of the flying machine is the holder of the pilot's licence to fly public transport flying machines, a person carried with the consent of the operator of the flying machine for the purpose of being trained to perform duties as a member of the operating crew of a flying machine.

PRIVATE PILOT'S LICENCE (FLYING MACHINES)

Age of applicant and period of licence.—(1) An applicant for the grant of a Private Pilot's licence (flying machines) must be not less than 17 years of age.

(2) The period for which a licence may remain in force, following either the grant of any renewal thereof, shall not exceed—

(a) 25 months if the applicant is less than 35 years of age,

(b) 12 months if the applicant is 35 years of age or more.

Privileges attaching to licence.—(1) The holder of the licence shall be entitled to fly:

(a) as pilot in charge of any private flying machine of a type described or specified in the aircraft rating of the licence, and

(b) as second pilot of any private flying machine of the same class as a flying machine described or specified in the aircraft rating of the licence.

Particulars of aircraft Rating.—The aircraft rating included in a licence to fly aeroplanes may include one or more of the following groups or types of aeroplanes; provided that each group shall be restricted to the class of aeroplanes in respect of which the applicant qualifies for the grant of a licence:—

Group A—All single-engined type of aeroplanes of which the maximum total weight authorised does not exceed 12,500 lbs.

Group B—All types of aeroplanes having 2 or more engines of which the maximum total weight authorised does not exceed 12,500 lbs.

Group C—Particular types of aeroplanes of which the maximum total weight authorised exceeds 12,500 lbs.

TECHNICAL REQUIREMENTS FOR GRANT OF LICENCE

Flying Experience.—An applicant for the grant of a licence shall be required to produce satisfactory evidence that he has had not less than 40 hours experience as a pilot of flying machines, comprising;

(1) flying training under a competent instructor in a dual controlled flying machine; and

(2) at least 15 hours flying as pilot in charge, not less than 3 hours of which must have been cross-country flying carried out within the six months immediately preceding the date of the application, and must have included one flight on a triangular course during which the flying machine either landed and came to rest at 2 intermediate places or was observed to fly over by observers placed at the places, one being not less than 15 nautical miles from the place of departure:

Provided that in the case of an applicant who has passed an approved course of flying training the said requirement of 40 hours flying may be reduced to 30 hours.

Practical Flying Tests.—The applicant shall, subject to the provisions of Rules (Exemptions) be required to demonstrate in the course of general flying test his competence to carry out normal and emergency manœuvres on the class or type of flying machine to which the application relates.

Technical Examination.—The applicant shall, subject to the provisions of Rule be required to undergo an examination as to his knowledge of the following subjects:—

(a) Aviation Law;

(b) Elementary Meteorology;

(c) Map Reading and use of Compass;

(d) Method of operation and functioning of flying machines, with particular relation to the class or type of flying machine for which the licence is desired.

Exemptions.—An applicant may, at the descretion of the Central Government and according to the applicant's qualifications and experience, be exempted from all or any part of the flying tests and technical examination if he:—

(1) has at any time held a flying machine pilot's licence; or

(2) holds an Aviator's Certificate issued by the Aero Club of India in respect of the class or type of flying machine to which the application relates issued within the period of one year immediately preceding the date of the application for the licence.

Syllabuses of Practical Flying Tests and Technical Examinations.—The details of the practical flying tests, including the conditions applicable thereto, and the technical examination referred to in Rule ....and.........are specified in D.G C.A. Pamphlet No. 1, "Private Pilot's licence," copies of which may be obtained on application to the Director General of Civil Aviation, New Delhi, or the Controller of Aerodromes, Bombay, Delhi, Calcutta and Madras.

Night Rating.—(1) A night rating may be included in a licence and shall entitle the holder, subject to the privileges attaching to the licence, to act as pilot in charge of flying machines carrying passengers on flights made by night:

Provided that the holder of a licence which includes a Night Rating shall not (except in a case when the licence also includes a rating entitling him to act as Instructor or as an Assistant Instructor in the flying of flying machines and he is flying for the purpose of so acting) exercise the privileges of such Night Rating unless he has, within the immediately preceding six months, carried out as pilot in charge of a flying machine not less than 5 take-offs and 5 landings by night.

(2) An applicant for a Night Rating shall be required to produce satisfactory evidence that he has carried out in an aeroplane not less than 50 hours flying as pilot, comprising—

(a) flying training under a competent instructor in a dual controlled aeroplane;

(b) at least 25 hours flying as pilot in charge of the aeroplane;

(c) at least 5 hours instruction in instrument flying; and

(d) at least 5 hours night flying, including not less than 5 flights as pilot in charge, carried out to the satisfaction of a competent instructor within the six months immediately preceding the date of the application:

Provided that a maximum of 2½ hours instrument flying training carried out on the ground in approved devices may be accepted in part satisfaction of the requirement specified at (c) in this paragraph.

(3) The evidence normally required with respect to the flying experience specified at (c) in this paragraph shall consist of a certificate issued by a person who holds a flying machine pilot's licence including an instructor's rating.

Flying Experience for Renewal of Licence.—An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had, during the 12 months immediately preceding the date of the application, not less than 5 hours flying experience as pilot in charge on each class of flying machine for which the renewal is desired. In default of such evidence the applicant may be required to undergo all or any part of the practical flying tests and the technical examination specified for the grant of a licence, as the Central Government may consider appropriate in the circumstances of the case.

Extension of licence.—An applicant for the extension of the Aircraft Rating in a licence to include an additional class or type of flying machine will normally be required to carry out practical flying tests in accordance with Rule .... and to undergo a technical examination in the method of operation and functioning of flying machines of the class or type to which the application relates:

Provided that an applicant may, at the discretion of the Central Government and according to the applicant's qualifications and experience, be exempted from all or any part of the said tests and examination if he holds an Aviator's Certificate issued by the Aero Club of India in respect of the class or type of flying machine to which the application relates issued within the period of 2 years immediately preceding the date of the application.

COMMERCIAL PILOT'S LICENCE

(FLYING MACHINES)

16. **Age of applicant and period of licence.**—An applicant for the grant of a commercial pilot's licence (flying machines) must be not less than 18 years of age.

17. The period for which a licence may remain in force, following either the grant or renewal thereof, shall not exceed six months.

18. **Aircraft Rating.**—The Aircraft Rating included in the licence shall specify, in Group 1 and Group 2 thereof, the type or types of flying machines which, subject to Rule 19, the holder of the licence is entitled to fly as pilot in charge and as second pilot respectively. Group 2 shall include all the types of flying machines which are entered in Group 1 and such other type as may be specified.

19. **Privileges attaching to licence.**—The holder of the licence shall be entitled to fly (1) as pilot in charge of—

(a) any public transport flying machine of which the maximum total weight authorised does not exceed 12,500 lbs., and which is not employed on a scheduled journey; and

(b) any aerial work flying machine; and

(c) any private flying machine; which is of the same type as a flying machine specified in Group 1 of the Aircraft Rating of the licence; and

(d) any private aeroplane of which the maximum total weight authorised does not exceed 12,500 lbs. and having (1) one engine or (2) more than one engine, if, as respects (1), an aeroplane of the same class and having one engine, and as respects (2), an aeroplane of the same class and having more than one engine, as specified in Group 1 of the Aircraft Rating of the licence:

Provided that the holder of the licence shall not (except in a case where he is a person entitled by virtue of a Rating included in the licence to act as Instructor or as Assistant Instructor in the flying of flying machines and is flying for the purpose of so acting) be entitled to act as pilot in charge of a flying machine carrying passengers on a flight made by night, unless he has within the immediately preceding 90 days, carried out as pilot in charge of a flying machine not less than 5 take-offs and 5 landings by night; and

(2) As second pilot of—

(a) any public transport flying machine carrying passengers;

(b) any public transport flying machine not carrying passengers;

(c) any aerial work flying machine; and

(d) any private flying machine; which as respects (a) is of the same type, and, as respects (b), (c) and (d), is of the same class, as a flying machine specified in Group 2 of the Aircraft Rating of the licence.

20. **Technical requirements for grant of licence. Flying Experience.**—An applicant for the grant of a licence shall, subject to the provisions of Rule 24, be required to produce satisfactory evidence that he has had not less than 200 hours experience in flying machines; comprising:

(a) flying training under a competent instructor in a dual controlled flying machine, not less than 10 hours of which must have been instruction in instrument flying:

(b) flying as pilot in charge for not less than 100 hours including—

(i) at least 20 hours cross-country of overseas flying, including one flight of at least 300 nautical miles during which the flying machine must have landed and some to rest at 2 intermediate places;

(ii) at least 10 hours night flying (5 hours of which, however, may have been carried out under instruction), during which the applicant must have carried out 10 take-offs and 10 landings by night without assistance from any other person on board the flying machine; and

(iii) at least 10 hours flying carried out during the six months immediately preceding the date of the application; and

(c) a reasonable amount of flying experience as pilot the type of flying machine to which the application relates:

Provided that:

(1) in the case of an applicant who has passed an approved course of flying training, the said requirement of 200 hours flying experience may, at the discretion of the Central Government, be reduced to 150 hours;

(2) flying experience as second pilot may be reckoned towards the total requirements of 200 hours (or 150 hours) to the extent that one

half of such flying, upto a maximum allowance of 50 hours, may be included if it was carried out on (a) flying machines required under the order of these rules to have on board more than one pilot, or (b) military flying machines which normally carried more than one pilot.

21. **Practical Flying Test.**—The applicant shall, subject to the provisions of Rule 24, be required, in the course of flying tests, including flights by day and day night with an examiner on board, to demonstrate his general competence as a pilot during normal and emergency manoeuvres and his ability to fly the type of flying machine to which the application relates.

22. **Technical Examination.**—The applicant shall, subject to the provisions of Rule 24, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(a) Aviation Law;

(b) Flight Operation;

(c) Practical Air Navigation including the use of aeronautical charts;

(d) Elementary meteorology including simple analysis of weather maps and meteorological reports;

(e) Navigational instruments and aids to flights under visual flight rules (V.F.R.);

(f) Theory of Flight and Aircraft Operating limitations, including basic principles of loading and weight distribution, and their effect on flight characteristics;

(g) Aircraft, Equipment and Installations;

(h) Elementary general aspects of Airframe and Power Plant Maintenance.

23. **Syllabus of Practical Flying Tests and Technical Examinations.**—The details of the practical flying tests including the conditions applicable thereto and the technical examination referred to in Rules 21 and 22 are specified in D.G.C.A. Pamphlet No. "Commercial Pilot's Licence", copies of which may be obtained on application to the Director General of Civil Aviation, New Delhi.

24. **Exemptions.**—An applicant who has been the holder of a Commercial Pilot's licence (flying machines) or a licence of a higher class may, at the discretion of the Central Government and having regard to the type of flying machine for which a licence is desired, be exempted from all or any part of the requirements as to flying experience, practical flying tests and technical examination specified in Rules 20, 21, and 22. Any exemption in respect of the said practical flying tests may be made conditional upon the satisfactory completion by the applicant of a special flying test.

25. **Flying experience for renewal of licence.**—An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of flying machines during the six months immediately preceding the date of the application. The applicant may also, at the discretion of the Central Government, be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot on each type of flying machine for which the renewal is desired since the type

was entered on the licence. In default of such evidence as aforesaid, the applicant may be required to undergo all or any part of the practical flying test and technical examination specified for the grant or extension of a licence, as the Central Government may consider appropriate in the circumstances of the case.

26. **Extension of licence.**—An applicant for the extension of the Aircraft Rating of a licence to include the flying of an additional type of flying machine, either as pilot in charge or as second pilot, shall be required to satisfy the Central Government as to his competence to fly the type of flying machine concerned. For this purpose the applicant shall be required to satisfy the requirements as to flying experience, practical flying tests and technical examination specified in the pamphlet referred to in Rule 23.

SENIOR COMMERCIAL PILOT'S LICENCE

(FLYING MACHINES)

27. **Age of applicant and period of licence.**—An applicant for the grant of a Senior Commercial Pilot's licence (flying machines) must not be less than 21 years of age.

28. The period for which a licence may remain in force, following either the grant or any renewal thereof, shall not exceed six months.

29. **Aircraft Rating.**—The Aircraft Rating included in the licence shall satisfy, in Group 1 and Group 2 thereof, the type or types of flying machines which, slubject to Rule 30, the holder of the licence is entitled to fly as Pilot in charge and as Second Pilot respectively. Group 2 shall include all the types of flying machines which are entered in Group 1 and such other types as may be specified.

30. **Privileges attaching to licence.**—The holder of the licence shall be entitled to fly—

(1) As Pilot in charge of—

(a) Any public transport flying machine of which the maximum total weight authorised does not exceed 15,000 lbs.;

(b) Any public transport flying machine, not carrying passengers, of which the maximum total weight authorised does not exceed 30,000 lbs.;

(c) Any aerial work flying machine; and

(d) Any private flying machine, which is of the same type as a flying machine specified in Group 1 of the aircraft rating of the licence; and

(e) Any private flying machine, which the maximum total weight authorised does not exceed 12,500 lbs. and having—

(i) One engine or

(ii) More than one engine,

if, as respects (i), an aeroplane of the same class and having one engine, and as respects (ii) an aeroplane of the same class and having more than one engine, is specified in Group 1 of the Aircraft Rating of the licence and

(2) As Second Pilot of—

(a) Any public transport flying machine carrying passengers;

(b) Any public transport flying machine not carrying passengers;

(c) Any aerial work flying machine; and

(d) Any private flying machine, which, as respects (a), is of the same type, and, as respects (b), (c) and (d), is of the same class, as a flying machine specified in Group 2 of the aircraft rating of the licence.

Instrument Rating.—The licence shall include an Instrument Rating.

Technical requirements for grant of licence.—An applicant for the grant of a licence shall be required to satisfy the requirements for an Instrument Rating specified in Rule 3: Provided that an applicant who is the holder of a flying machine pilot's licence in which an Instrument Rating is included shall be excepted from this requirement.

32. **Flying experience.**—The applicant shall, subject to the provisions of Rule 36, be required to produce satisfactory evidence that he has had not less than 700 hours experience as pilot in flying machines comprising—

(a) Not less than 200 hours experience as pilot in charge of flying machines, including—

(i) At least 50 hours cross-country or oversea flying;

(ii) At least 25 hours night flying;

(iii) At least 10 hours cross-country or oversea flying by night; and

(iv) At least 10 hours flying carried out during the six months immediately preceding the date of the application; and

(b) A reasonable amount of flying experience as pilot on the type of flying machine to which the application relates:

Provided that flying experience as Second Pilot may be reckoned towards the total requirement of 700 hours to the extent that one half of such flying may be included if it was carried out on—

(a) Flying machines required under the order of these rules to have on board more than one pilot, or

(b) Military flying machines which normally carried more than one pilot.

Practical Flying Tests.—The applicant shall, subject to the provisions of Rule 36, be required, in the course of flying tests with an examiner on board and including an instrument flying test, to demonstrate his general competence as a pilot during normal and emergency manœuvres under visual and instrument flight conditions, and his ability to fly the type of flying machine to which the application relates.

34. **Technical examination.**—The applicant shall, subject to the provisions of Rule 36, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(a) Rules and Regulations governing civil aviation which are pertinent to the operation of public transport aircraft;

(b) The basic principles of Air Navigation including the use of formulae, instruments and other navigational aids which are deemed necessary for the navigation of aircraft by instruments;

(c) The general system of collection and dissemination of weather data, including—

(i) Weather maps, weather forecasts and weather abbreviations, symbols and nomenclature;

(ii) Elementary meteorology including knowledge of pressure systems based on modern conceptions, the association of pressure systems with fronts, cloud forms and icing conditions, movements of upper winds and their effect on aircraft operation; and

(iii) Weather service circulars and instructions for air route, meteorological service which are pertinent to aircraft operation;

(d) Radio communication procedures as applied to aircraft operation;

(e) Radio principles of leading and weight distribution and their effect on flight characteristics;

(f) Aircraft, Equipment and Installations;

(g) The general aspects of airframe and Power Plant maintenance.

35. **Syllabus of Practical Flying Tests and Technical Examination.**—The details of the practical flying tests, including the conditions applicable thereto and the technical examination referred to in Rules 33 and 34 are specified in D.G.C.A. Pamphlet No. .... "Senior Commercial Pilot's Licence", copies of which may be obtained on application to the Director General of Civil Aviation, New Delhi.

36. **Exemptions.**--(1) An applicant who is the holder of a Commercial Pilot's licence (flying machines) in respect of the type of flying machine to which the application relates shall not be required to undergo again the flying tests and technical examination normally required in respect of that type, and

(2) An applicant who has been the holder of a Senior Commercial Pilot's licence (flying machines) or a licence of a higher class may, at the discretion of the Central Government and having regard to the type of flying machine for which a licence is desired, be exempted from all or any part of the requirements as to flying experience, practical flying tests and technical examination, specified in Rules 32, 33 and 34. Any exemption in respect of the said practical flying tests may be made conditional upon the satisfactory completion by the applicant of a special flying test.

37. **Renewal of licence.**—An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of flying machines during the

six months immediately preceding the date of the application. The applicant may also, at the discretion of the Minister, be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot on each type of flying machine for which the renewal is desired since the type was entered on the licence. In default of such evidence as aforesaid the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant or extension of a licence as the Central Government may consider appropriate in the circumstances of the case.

38. **Extension of licence.**—An applicant for the extension of the aircraft rating of a licence to include the flying of an additional type of flying machine, either as Pilot in charge or as Second Pilot, shall be required to satisfy the Central Government as to his competence to fly the type of flying machine concerned. For this purpose the applicant shall be required to satisfy the requirements as to flying experience, practical flying tests and technical examination specified in the pamphlet referred to in Rule 35.

AIRLINE TRANSPORT PILOT'S LICENCE

(FLYING MACHINES)

39. **Age of applicant and period of licence.**—An applicant for the grant of an Airline Transport Pilot's licence (flying machines) must be not less than 21 years of age.

40. The period for which a licence may remain in force following either the grant or any renewal thereof shall not exceed six months.

41. **Aircraft Rating.**—The Aircraft Rating included in the licence shall specify, in Group 1 and Group 2 thereof, the type or types of flying machines, which, subject to Rule 42, the holder of the licence is entitled to fly as Pilot in charge and as Second Pilot respectively. Group 2 shall include all the types of flying machines which are entered in Group 1 and such other types as may be specified.

42. **Privileges attaching to licence.**—The holder of the licence shall be entitled to fly—

(1) As pilot in charge of—

(a) Any public transport flying machine;

(b) Any aerial work flying machine; and

(c) Any private flying machine; which is of the same type as the flying machine specified in Group 1 of the Aircraft Rating of the licence; and

(d) Any private aeroplane of which the maximum total weight authorised does not exceed 12,500 lbs. and having—

(i) one engine, or

(ii) more than one engine, if, as respects (1), an aeroplane of the same class and having one engine, and as respects (2), an aeroplane of the same class and having more than one engine, is specified in Group 1 of the aircraft rating of the licence; and

(2) As Second Pilot of—

(a) Any public transport flying machine carrying passengers;

(b) Any public transport flying machine not carrying passengers;

(c) Any aerial work flying machine; and

(d) Any private flying machine, which, as respects (a), is of the same type, and as respects (b), (c) and (d), is of the same class, as a flying machine specified in Group 2 of the aircraft rating of the licence.

Instrument Rating.—The licence shall include an instrument rating.

43. **Technical requirements for grant of licence. Instrument Rating.**—An applicant for the grant of a licence shall be required to satisfy the requirements for an Instrument Rating specified in Rule 3,

Provided that an applicant who is the holder of a flying machine pilot's licence in which an instrument rating is included shall be excepted from this requirement.

44. **Flying experience.**—The applicant shall, subject to the provisions of Rule 48, be required to produce satisfactory evidence that he has had not less than 1,200 hours experience as a pilot in flying machines comprising:

(a) At least 100 hours night flying;

(b) At least 250 hours flying as pilot in charge, of which not less than 10 hours must have been carried out during six months immediately preceding the date of the application, and including not less than 100 hours cross-country or oversea flying of which not less than 25 hours must have been flown by night;

(c) At least 75 hours flying solely by reference to instruments which must have been carried out by the applicant without assistance from any other person on board the flying machine;

(d) A reasonable amount of flying on the type of flying machine to which the application relates;

(e) At least 200 hours cross-country or oversea flying as Second Pilot in flying machines required under the order of these rules to have on board more than one pilot, or in military flying machines which normally carried more than one pilot;

Provided that:

(1) flying experience as Second Pilot may be reckoned towards the total requirements of 1,200 hours to the extent that one half of such flying may be included if it was carried out in flying machines—

(a) required under the order of these rules to have on board more than one pilot, or

(b) in military flying machines which normally carried more than one pilot;

(2) An applicant who has had not less than 200 hours of experience as pilot in charge on cross-country or oversea, flights may be exempted from the requirements specified at (e) in this paragraph;

(3) Training in instrument flying carried out on the ground in approved devices may, at the discretion of the Minister, up to a maximum of 25 hours, be accepted in part satisfaction of the requirement specified at (e) in this paragraph.

45. **Practical Flying Tests.**—The applicant shall, subject to the provisions of Rule 38, be required, in the course of flying tests with an examiner on board and including an instrument flying test, to demonstrate his general competence as a pilot during normal and emergency manoeuvres under visual and instrument flight conditions and his ability to fly the type of flying machine to which the application relates.

46. **Technical examination.**—The applicant shall, subject to the provisions of Rule 48, be required to undergo an examination (including practical tests) as to his knowledge of the following subjects:—

(a) Aviation law;
(b) Flight Operation;
(c) Air Navigation;
(d) Meteorology;
(e) The interpretation of navigational aid, identification signals;
(f) Theory of Flight and aircraft operating limitations; and
(g) Aircraft, Equipment and Installations; and
(h) Airframe and Power Plant maintenance.

47. **Syllabus of Practical Flying Tests and Technical Examination.**—The details of the practical flying tests including the conditions applicable thereto, and the technical examination referred to in Rules 45 and 46 are specified in D.G.C.A. Pamphlet No.......... "Airline Transport Pilot's Licence", copies of which may be obtained on application to the Director General of Civil Aviation, New Delhi.

48. **Exemptions.**—(1) An applicant who is the holder of a Commercial or a Senior Commercial Pilot's licence (flying machines) in respect of the type of the flying machine to which the application relates shall not be required to undergo again the flying tests and technical examination normally required in respect of that type; and

(2) An applicant who has been the holder of an Airline Transport Pilot's licences (flying machines) may, at the discretion of the Central Government and having regard to the type of flying machine for which a licence is desired, be exempted from all or any part of the requirements as to flying experience, practical flying tests and technical examination specified in Rules 44, 45 and 46. Any exemption in respect of the said practical flying tests may be made conditional upon the satisfactory completion by the applicant of a special flying test.

49. **Renewal of licences.**—An applicant for the renewal of a licence shall be required to produce satisfactory evidence that he has had reasonable flying experience as a pilot of flying machines during the six months immediately preceding the date of the application. The applicant may also be required to produce satisfactory evidence that he has had reasonable flying experience on each type of flying machine for which the renewal is desired since the type was entered on the licence, default of such evidence as aforesaid the applicant may be required to undergo all or any part of the practical flying tests and technical examination specified for the grant or extension of a licence as the Central Government may consider apropriate in the circumstances of the case.

50. **Extension of the licence.**—An applicant for the extension of the aircraft rating of a licence to include the flying of an additional type of flying machine, either as pilot in charge or as Second Pilot shall be required to satisfy the Central Government as to his competence to fly the type of flying machine concerned. For this purpose the applicant shall be required to satisfy the requirements as to flying experience, practical flying tests and technical examination specified in the pamphlet referred to in Rule 47.

GRANT OF RATING TO ACT AS ASSISTANT INSTRUCTOR OR AS INSTRUCTOR

The examination and tests for the inclusion in a licence, extension or renewal of a Rating to give instruction in flying shall be conducted by a Panel of Examiners approved by the Director General of Civil Aviation hereinafter referred to as the "Examining Body". On each occasion before the inclusion in a licence, extension or renewal of any such Rating a report shall be furnished to the Director General of Civil Aviation stating whether, in the opinion of the examining body, the applicant is qualified for the rating or for such extension or renewal, as the case may be.

2. The Director General may, upon production by the applicant of his pilot's licence and after consideration of the report furnished by the Examining Body, include in such licence a rating entitling the holder thereof to give instruction in flying in the capacity of Instructor or of Assistant Instructor, subject to such conditions as may be specified in the Rating.

3. The period for which a rating for giving instruction in flying may continue in operation, following either the inclusion in a licence or any renewal thereof, shall not exceed 12 months.

Rating to act as Assistant Instructor.—(1) A rating to act in the capacity of Assistant Instructor may be included in a flying machine pilot's licence of any class and will be limited to particular classes and types of flying machines, having regard to the report of the Examining Body.

(2) A rating in respect of one or more classes or types of flying machines may be extended to cover the giving of instruction in

flying additional classes or types on the Director General of Civil Aviation being furnished by the Examining Body with a satisfactory report that the applicant has produced such evidence and completed such examination and tests as may be appropriate in the circumstances of the case.

(3) Such a rating will be made valid only for the giving of instruction under the direction of a competent instructor and will not authorise the holder to give directions to a pupil in regard to either the pupil's first solo flight or his first solo cross-country flight.

(4) An applicant for an Assistant Instructor's rating shall be required—

(a) To produce satisfactory evidence that he has carried out not less than 100 hours flying as pilot-in-charge of a flying machine, of which not less than 30 hours shall have been carried out on the class of flying machine to which the application relates;

(b) To produce satisfactory evidence that he has passed a Flying Instructor's course, the syllabus of which has been approved;

(c) To undergo a written examination in the subjects of such a course; and

(d) To undergo a flying test, with an approved examiner on board, for the purpose of determining the applicant's practical ability to act as an Assistant Instructor.

Rating to act as Instructor.—(1) A rating to act in the capacity of Instructor may be included in a Private, Commercial, Senior Commercial or Airline Transport Pilot's licence (flying machines) and will be limited to the giving of instruction on such types of flying machines, specified in the Aircraft Rating of the licence, as the holder is, by the terms of the licence, entitled to fly as pilot-incharge.

(2) An applicant for an Instructor's rating shall be required—

(a) To produce satisfactory evidence that:—

(i) He has carried out not less than 400 hours flying as pilot-in-charge of a flying machine, of which not less than 30 hours shall have been carried out on the class and type of flying machine to which the application results;

(ii) His flying experience includes not less than 100 hours flying in the capacity of Assistant Instructor;

(b) To undergo a flying test with an approved examiner on board for the purpose of determining the applicant's practical ability to act as an Instructor; and

(c) To satisfy the requirements for a rating to act as an Assistant Instructor specified in Sub-paragraphs (b) and (c) of paragraph 4 of Rule.........

(3) An applicant who has qualified as an Instructor in flying machines in the Indian Air Force, may, according to his qualifications and experience, be exempted from all or any of the requirements

specified in paragraph 4 of Rule ....or paragraph 2 of Rule........ such exemption may be made conditional upon the satisfactory completion of any part of the examinations and tests.

Gliders towed by flying machines.—(1) An applicant for a rating to give instruction in flying gliders (of which the maximum total weight authorised exceeds 1.250 lbs.) towed by flying machines shall be required:—

(a) To produce satisfactory evidence that he has carried out not less than 400 hours flying as pilot-in-charge of a glider or flying machine. of which—

(i) not less than 30 hours flying and 80 landings shall have been carried out by him as pilot-in-charge of a glider; and

(ii) not less than 25 hours flying, including 5 flights during which a glider has been towed by the flying machine and released therefrom, shall have been carried out by him as pilot-in-charge of a flying machine;

(b) To undergo an oral examination in the subjects of a Gliding Instructor's course conducted in accordance with an approved syllabus.

(2) In addition, the applicant may be required to undergo a flying test, on a flying machine or a glider towed by a flying machine, or on both, with an approved examiner on board, for the purpose of determining his practical ability to give instruction in flying gliders towed by flying machines:

Provided that an applicant:—

(1) in whose licence there is included a rating to give instruction in flying machines; or

(2) who has qualified as an Instructor in flying flying machines or gliders in Indian Air Force may, according to his qualifications and experience, be exempted from all or any of the requirements of this rule. Such exemption may be made conditional upon the satisfactory completion of a special examination or test.

REQUIREMENTS FOR THE GRANT OF TOWNING RATING

1. An applicant for a Towing Rating must be the holder of a Commercial, Senior Commercial or Airline Transport Pilot's licence (flying machines) granted under these Rules.

2. The applicant shall be required to satisfy the requirements as to flying experience and undergo tests and examination as specified in sub-paragraphs (a), (b) and (c) below:—

(a) **Flying experience.**—The applicant shall be required to produce satisfactory evidence that he has, during the 12 months immediately preceding the date of the application, carried out—

(i) as pilot-in-charge of a flying machine towing a glider, not less than 5 hours flying, including at least 10 flights, not less than 3 of which shall have been carried out at night; and

(ii) as pilot-in-charge of a glider towed by a flying machine and released therefrom, not less than 3 hours flying, including at least 10 flights, one of which shall have been carried out at night.

(b) **Practical flying tests.**—Two flights as pilot-in-charge of a flying machine of a type included in Group 1 of the Aircraft Rating of the applicant's licence, towing one or more gliders during each of which flights the applicant shall, in accordance with a plan arranged beforehand, fly to the position where the glider or gliders are to be released, and after such release, drop the tow rope within the assigned area and land the flying machine at the assigned place.

In respect of one of these flights the total weight of the glider or gliders shall approximate the maximum weight which the flying machine may be permitted to tow in the circumstances of the flight. The other flight shall be carried out at night and the position of the release shall be when the flying machine is down-wind of the place at which the glider or the gliders are to land and is flying across wind at a suitable height above the level of that place.

The test shall be subject to the following conditions:—

(i) the test may be carried out in any order;

(ii) the test shall be witnessed or conducted as the case requires, by properly accredited examiners who shall deposit their reports with the Director-General of Civil Aviation. The report shall give full details of the flights, and in particular, of the landings; and

(iii) The applicant shall, before each test furnish the examiners with proof of his indentity.

(c) **Technical Examination.**—(i) General knowledge of the procedure for towed flights, including the systems of intercommunication which may be used; the methods of towing; the effect of variation of load; and of wind and other meteorological conditions on gliding and towed flights; the principles governing the selection of landing grounds for gliders;

(ii) Knowledge of the types of gliders approved for towing by such types of flying machines included in Group 1 of the Aircraft Rating of the applicant's licence as have been approved for towing; the flight characteristics of and instructions prescribed for such types of gliders; the permissible limits of loading for such combinations of flying machines and gliders; the types of tow ropes which may be used; the methods of inspection of two ropes and quick release devices;

(iii) Practical knowledge of Aviation Law, with particular reference to the rules and regulations issued thereunder, also knowledge of any information notified with respect to the responsibility of a pilot in towing operations;

Provided that—

(1) an applicant who is the holder of a Commercial Pilot's licence (training gliders) may be exempted from technical examination in the subjects specified in sub-paragraph (c) (i) and (iii) of this paragraph; and

(2) an applicant who has at any time flown as a pilot of any flying machines towing gliders in Indian Air Force may, according to his qualifications and experience, be exempted from all or any of the above requirements as to flying experience and practical flying tests, and from technical examination in the subjects specified in sub-paragraph (c) (i) and (ii) of this paragraph. Such exemption may be made conditional upon the satisfactory completion of a special flying test.

ANNEXURE

1. **Private Pilot's Licence.**—A person who holds or has held a Private Pilot's licence ("A" licence) issued under the Indian Aircraft Rules, 1937, with a total of 50 hours solo flying experience may be issued, without further formalities than the normal medical examination, this new Private Pilot's licence endorsed for the type or types of aircraft already endorsed on his "A" licence, provided that he produces evidence of recent flying experience as required for the renewal of Private Pilot's licence.

2. **Commercial Pilot's Licence.**—A person who holds or has held a Commercial Pilot's licence ("B" licence) issued in accordance with Part V of the Indian Aircraft Rules, 1937, may be issued without further formalities other than the normal medical examination the new Commercial Pilot's licence provided he produces evidence of having had recent flying experience for the renewal of the Commercial Pilot's licence.

A person who holds or has held a Limited Commercial Pilot's Licence ("A-1" licence) issued in accordance with Part V of the Indian Aircraft Rules, 1937, shall have to pass all the examinations and flying tests required for the issue of a Commercial Pilot's licence and also produce evidence of having carried out the necessary flying required for the issue of a Commercial Pilot's licence; otherwise he shall be issued only with a Private Pilot's licence in accordance with paragraph 1 above.

3. **Senior Commercial Pilot's Licence.**—A person who holds or has held a Commercial Pilot's licence ("B" licence) and who also passesses or has held an Aircraft Navigator's licence which is not less than a 2nd Class Aircraft Navigator's licence issued in accordance with Part V of the Indian Aircraft Rules, 1937, and who satisfies the requirements of flying experience for a Senior Commercial Pilot's licence and of the Instrument Rating, may be issued a Senior Commercial Pilot's licence without further technical examination provided he satisfies the medical requirements for the Senior Commercial Pilot's licence and possesses recent flying experience as required for the renewal of that licence.

4. **Airline Transport Pilot's Licence.**—A person who holds or has held a "B" licence and who also possesses or has possessed an Aircraft Navigator's licence which is not less than a 2nd Class Aircraft Navigator's licence issued in accordance with Part V of the Indian Aircraft Rules, 1937, and who satisfies the requirements of flying experience for an Airline Transport Pilot's licence and the Instrument Rating and in addition has flown as a Pilot-in-Command on scheduled air routes for a minimum time of at least 2,000 hours may be issued an Airline Transport Pilot's licence without further technical examination and/or flying tests provided he satisfies the requirements of medical standards for the Airline Transport Pilot's licence and also possesses recent flying experience as required for the renewal of that licence.

Provided that a person who holds or has held a Commercial Pilot's licence ("B" licence) issued in accordance with Part V of the Indian Aircraft Rules, 1937, and who does not comply with the requirements of the Senior Commercial Pilot's or an Airline Transport Pilot's licence in respect of technical examinations, that is, if he does not hold or has not held a Navigator's licence which is equivalent at least to 2nd Class Aircraft Navigator's licence, shall be required to pass a conversion examination held by the Director General of Civil Aviation for such a licence.

5. **Flight Instructor's Rating.**—A person who holds or has held a Pilot Instructor's licence issued in accordance with Part V of the Indian Aircraft Rules, 1937, may be issued with a Pilot Instructor's Rating if he satisfies the requirements for a Flight Instructor's Rating. Otherwise, he will be issued with an Assistant Flight Instructor's Rating unless and until he qualifies as required for the issue of a Flight Instructor's Rating.

6. **Flight Navigator's Licence.**—A person who holds or has held a First Class Navigator's licence shall be given the new Flight Navigator's licence without formalities provided that he fulfils the medical requirements and complies with the recent flying requirements for the renewal of that licence.

Persons who hold a Second Class Aircraft Navigator's licence and who satisfy the requirements of flying experience, medical standards for the issue of a Flight Navigator's licence, and recent flying experience for renewal of a Flight Navigator's licence shall be required to pass a conversion examination which will consist of—

(a) Two papers in astronomical Navigation which will include definition of astronomical terms, complete knowledge of the celestial sphere and time and arrangement and use of all aeronautical almanacs, reduction of sights and use of astro-navigational instruments.

(b) One paper on Radio and Radar aids to navigation.

7. **Flight Radio Operator's Licence.**—(a) The holder of a First Class Radio Telegraph Operator's licence with over 1,000 hours flying experience and minimum of one year's service with an airline shall be required to pass an oral test (in procedures) before the new Flight Radio Operator's licence is issued.

(b) The holder of a First Class Radio Telegraph Operator's licence with less than 1,000 hours of flying experience as Radio Telegraph Operator and one year's service with an airline company shall be required to pass a written examination and an oral test (in procedures)—no Morse speed test will be necessary.

(c) The holder of a Second Class Radio Telegraph Operator's licence with more than 1,000 hours flying experience as Radio Operator and a minimum of one year's service with an airline company shall be required to pass—

(i) oral test (in procedures)

(ii) Morse speed test to judge the quality of siganalling both for transmission and reception.

(d) The holder of Second Class Radio Telegraph Operator's licence with less than 1,000 hours of flying experience and one year's service with an airline company shall be required to pass the full test as for the Flight Radio Operator. The test will consist of three parts:—

(i) written examination.

(ii) oral test (in procedures) and

(iii) Morse speed test.

Instrument Rating.—A person who has passed an examination not lower than the Second Class Aircraft Navigator's licence examination or who holds a Navigator's licence not lower than second class aircraft Navigator's licence held or issued under the Indian Aircraft Rules, 1937, and who has the required hours of flying experience and instrument flying time may be granted an Instrument Rating without further examinations and tests, provided that such person has been operating as Pilot-in-Command on scheduled air services for a minimum period of at least 12 months and has carried out not less than 20 hours of flying solely by reference to instruments.

APPENDIX 'G'

I.C.A.O. CURRICULUM FOR THE TRAINING OF PRIVATE PILOTS

1.1. GROUND TRAINING.

Sufficient ground instruction on the subjects detailed herein should be given to enable students to reach the degree of proficiency required:—

(a) Aerodynamics and theory of flight (elementary);
(b) Aircraft and engines (elementary);
(c) Instruments (elementary);
(d) Aviation Meteorology (elementary);
(e) Air Navigation (elementary);
(f) General flight rules;
(g) Air traffic control;
(h) Rules for air transit;
(i) Handling and care of aircraft;
(j) Fire;
(k) Use of medical aids;
(l) Parachutes (if fitted to the aircraft used in flight training);
(m) Radio (if fitted to the aircraft used in flight training).

1.2. FLIGHT TRAINING.—

1.2.1. Flight training should be based on a minimum total of thirty hours flight time, dual and solo.

1.2.2. The flight training curicula should be arranged so as to give instruction and solo flying practice on all manoeuvres necessary to enable the student to demonstrate his proficiency to the degree required of a private pilot.

1.2.3. Before flight training is commenced, the instructor should familiarise the student with the type of aircraft to be used in the training. The explanation should include:

(a) Description, functions and method of operation of the controls including the throttle;
(b) Instruments, fuel systems, brakes, communication system, signals used in instruction, use of safety belts and the location of fire extinguishers and first aid kit.

The student should receive special warning concerning the danger of propellers and starting and running engines unless there is a qualified person at the controls. Special emphasis should be given to the importance of a clean windshield.

1.2.4. **Primary manoeuvres prior to first solo.**—Dual instruction prior to solo should include both theoretical and practical instruction in taxying and primary flight manoeuvres.

1.2.5. A student should not be allowed to fly solo until he has demonstrated to his instructor his ability to recover from various types of bad landings and his ability to take safe action immediately following a baulked or spoiled approach.

1.2.6. **Secondary flight manoeuvres.**—Additional dual and solo practices in primary flight manoeuvres should be given after first solo during the period of the training on secondary flight manoeuvres.

1.2.7. The time spent and the amount of instruction and practice in respect of each flight manoeuvres should be apportioned so that the student is able to reach in each manoeuvres the degree of proficiencey required for the holder of a private pilot licence.

I.C.A.O. CURRICULUM FOR THE TRAINING OF COMMERCIAL PILOTS

2.1. **General requirements.**—Before commencing training students should already hold a private pilot licence or should have completed the private pilot curriculum set out in 3.

2.2. **Ground training.**—Sufficient ground instruction on the subjects detailed herein should be given to enable students to reach the degree of proficiency required:

(a) Aerodynamics and theory of flight;
(b) Aircraft engines (intermediate);
(c) Aircraft (intermediate);
(d) Instruments;
(e) Aviation meteorology (intermediate);
(f) Air navigation (intermediate);
(g) Radio;
(h) General flight rules;
(i) Air traffic control;
(j) Rules for air transit;
(k) Handling and care of aircraft.

2.3. FLIGHT TRAINING.

2.3.1. The air training curricula should be arranged so as to give instruction and solo flying practice on all manoeuvres necessary to enable the student to demonstrate his proficiency to the degree required of a commercial pilot.

2.3.2. Before flight training is commenced, the instructor should ensure that the student is familiar with the type of aircraft to be used in the training. The explanation should include:

(a) Location of controls, switches and cocks;
(b) Fuel and other systems;
(c) Instruments;
(d) Communication system, location of fire extinguishers and first-aid kit;
(e) Loading details;
(f) Engine starting running and stopping.

2.3.3. Flight training should ensure the completion of a minimum of one hundred and fifty hours total flight time:

(a) At least twenty hours by day;

(b) At least five hours dual and solo by night, of which at least three hours should be dual;

(c) At least ten hours of instruction in instrument flight of which not less than five hours shall be carried out during flight. Instruction on the ground in instrument flight should be carried out on mechanical devices approved by the Competent Licensing Authority;

(d) Sufficient flight time solo to complete a total of not less than one hundred hours as pilot-in-command.

NOTE:—The total of one hundred hours as pilot-in-command may include pilot-in-command flight time obtained before the commencement of the course of approved training for a commercial pilot licence.

2.3.4. The length of lessons should average not more than sixty minutes, with a maximum of three lessons in twenty four hours and a minimum of ninety minutes rest between lessons.

I.C.A.O. CURRICULUM OF TRAINING FOR INSTRUMENT RATING

3.1. **General requirements.**—A grading test comprising a flight test and a test of knowledge should be given to all students at the commencement of training. Subsequent ground and flight training should be based on the ability of the individual student as revealed in the grading test.

3.2. **Ground training.**—Sufficient ground instruction on the subjects detailed herein should be given to enable students to reach the degree of proficiency required:

(a) Air Navigation;
(b) Radio;
(c) Meteorology;
(d) General flight rules;
(e) Air traffic control;
(f) Rules for air transit;
(g) Instruments;
(k) Instrument flying;
(i) Handling of aircraft.

3.3. FLIGHT TRAINING

3.3.1. Sufficient flight instruction should be given to enable students to reach the qualifying degree of proficiency. This should be achieved within the tolerance limits allowed by the State coupled with smoothness and co-ordination of control movements.

NOTE:—Of the total of thirty hours of instrument time required to qualify for the instrument rating, not more than ten hours may be instrument ground time.

3.3.2. Before instrument flight training is commenced, the instructor should ensure that the student is familar with the type of aircraft to be used in training and should stress the importance of pre-flight checks. Particular emphasis should be placed on the effect of controls, flaps and undercarriage in normal and slow flying; also the procedure to be followed in an overshoot or bulked landing. Engine failure effect should also be demonstrated if multi-engined aircraft are being used for instrument flight training.

3.3.3. Except during the early stages of instruction in instrument flying, the whole of an instrument training exercise should be carried out solely by the use of instruments.

3.3.4. Particular attention should be paid to developing the student's ability in mental dedreckoning.

> NOTE.—This is essential to accurate orientation in final approaches when mental problems of bracketting, letdown speed and wind drift have to be solved with speed and accuracy.

3.3.5. The instrument flight training programme should include flight manoeuvres on instruments and be continued until the student can perform such manoeuvres to the satisfaction of the Competent Licensing Authority within the tolerance limits allowed. Where multi-engined aircraft are used in instrument flight training, these manoeuvres should also be carried out with simulated engine failure.

सत्यमेव जयते

STATEMENT I.

Statement giving the particulars of the Income and the Financial Assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during the period of six years, ending the 31st March, 1952.

Particulars	Bombay 1946-47 to 1951-52	Delhi 1946-47 to 1951-52	Bihar 1946-47 to 1951-52	Bengal 1946-47 to 1951-52	Madras 1946-47 to 1951-52	Hind Provl. 1947-48 to 1951-52	Orissa 1947-48 to 1951-52	Northern India 1948-49 to 1951-52	Madhya Pradesh 1948-49 to 1951-52	G.F.T.S Bangalore 1950-51 to 1951-52
Central Government										
Fixed Subsidy	1,90,000	1,90,000	1,90,000	1,96,667	1,90,000	1,50,000	1,53,333	1,02,500	1,02,500	57,500
Flying Subvention & Bonus Excess 1000 hours flying	7,19,436	3,71,705	1,75,630	4,07,411	5,32,138	5,09,646	85,199	2,01,572	1,17,752	40,430
Bonus 'A' licence	43,000	27,500	21,750	27,250	38,750	36,750	8,250	17,500	8,250	3,000
Petrol Rebate	62,029	25,744	21,304	13,669	37,975	28,067	10,364	29,923	18,245	6,405
Special Grant (recurring)	10,000	1,16,000	11,000	57,226	11,000	11,000	10,000	15,000	10,000	...
Total (*X*)	10,24,465	7,30,949	4,19,684	7,02,223	8,09,863	7,35,463	2,65,533	3,66,495	2,56,747	1,07,335
Members Subscriptions	1,77,246	1,20,550	45,028	1,62,534	62,585	34,947	9,441	20,305	33,245	5,070
Flying Fees	7,54,038	3,40,872	1,75,988	4,07,107	4,96,752	5,64,912	89,115	2,24,443	1,36,133	57,453
Joy Rides & Charter	6,718	4,192	2,32,705	1,063	28,749	7,621	1,543	955	420	635
Miscellaneous	98,081	1,19,529	85,798	1,34,668	37,014	54,763	1,04,976	96,982	26,911	16,587
State Government (recurring).	6,30,000	...	1,85,177	...	1,46,105	21,38,650	1,49,500	...	3,00,000	94,011

Total	26,90,602	13,16,092	11,44,380	14,07,595	15,81,068	35,36,356	6,20,108	7,09,180	7,53,456	2,81,091
Total Expenditure	25,20,457	14,57,769	11,94,666	13,72,577	16,82,987	35,10,876	5,72,896	8,61,059	6,40,340	2,81,091
Profit (+)	1,70,155	1,41,677	50,286	35,018	1,01,919	25,480	47,212	1,51,879	1,13,116	Nil.
Loss (—)	(+)	(—)	(—)	(+)	(—)	(+)	(+)	(—)	(+)	

(i) Capital grant of Rs. 50,000 was received by the Bihar Flying Club from the State Government, during the year 1949-50, for buildings and equipment.

(ii) A special grant of Rs. 34,925 was received by the Madras Flying Club from the State Government, during the year 1949-50.

(iii) A capital grant of Rs. 3,00,000 was received by the Northern India Flying Club from the State Government, during the year 1948-49, for the rehabilitation of the Club.

(iv) Capital Grants amounting to Rs. 5,69,528 were received by the Hind Provincial Flying Club from the State Government, during the period for the purchase of aircraft, spares, equipment etc. These grants were in addition to the grants shown in the statement, of six years, ending the 31st March, 1952.

(*X*) Non-recurring Grants amounting to Rs. 1,30,000 were given to the Delhi, Orissa and Northern India Flying Clubs and recurring grants of amounting to Rs. 1,31,672 were given to the Hyderabad State Aero Club by the Central Government during the period of six years ending 31st March, 1952. These grants were in addition to the grants shown in the statement.

STATEMENT II

Statement giving the particulars of the income and the Financial Assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during the year ending the 31st March 1947.

Particulars	Bombay	Delhi	Bihar	Bengal	Madras
Central Government					
Fixed Subsidy	40,000	40,000	40,000	36,667	40,000
Flying subvention and Bonus Excess 1000 Hrs. Flying	36,124	49,539	22,897	23,737	54,052
Bonus "A" Licence	4,000	6,000	5,250	4,000	8,000
Petrol Rebate	...	...	...	...	...
Special Grant	...	% 1,000	% 1,000	@21,000	% 1,000
Total	80,124	96,539	69,147	85,404	1,03,052
Members Subscriptions	21,695	10,035	5,127	24,950	6,987
Flying Fees	42,867	42,898	19,244	30,578	48,400
Joy Rides & Charters	269	210	35,107	...	9,546
Miscellaneous	11,211	7,350	9,676	10,313	5,294
State Government Subsidies	...	...	32,177	...	...
Total Income	1,56,166	1,57,032	1,70,478	1,51,245	1,73,279
Expenditure	150,723	1,50,811	1,19,804	1,02,811	1,53,732
Profit (+)	5,443 (+)	6,221 (+)	50,674 (+)	48,434 (+)	19,547 (+)
Loss (—)	...	...	...	...	...

% For C. of A. of 2 Govt. loaned L-5s.

@ In addition a sum of Rs. 20,000 was granted for the rehabilitation of the club.

STATEMENT III.

Statement giving the particulars of the Income and the Financial Assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of profit or loss made by them during the year ending the 31st March, 1948.

Particulars	Bombay	Delhi	Bihar	Bengal	Madras	Hind Provincial	Orissa	
Central Government								
Fixed Subsidy . . .	30,000	30,000	30,000	40,000*	30,000	37,500§	33,333	*A sum of Rs. 30,000 was actually paid.
Flying Subvention & Bonus Excess* . . .	1,09,194	66,464	35,247	31,654	1,02,183	51,145	2,214	§For the period from 1st April, 1947 to 30th June, 1948.
1000 Hrs. Flying Bonus "A" Licence . . .	7,000	5,500	5,000	3,500	10,500	7,000	...	
Petrol Rebate . . .	...	...	...	†	...	**	...	§§For C of A of 2 Government loaned L-5s.
Special Grant . . .	...	...	...	29,000§§	...	1,000	...	†Rs. 28,000 as a Capital grant for Hanger.
Total	1,46,194	1,01,964	70,247	1,04,154‡	1,42,683	96,645	35,547	Rs 1,000 for C. of A of 2 Government loaned L-5s. The amount was already taken into account during 1946-47.
Members Subscriptions .	25,530	21,214	6,386	31,353	10,410	5,600	500	
Flying Fees . . .	84,840	33,897	27,616	34,166	73,693	39,187	1,627	‡Includes a false income of Rs. 39,000 as per remarks at* and †above. The amount was written back in the accounts 1948-49.
Joy Rides & Charters .	25	673	60,335**	...	1,613	...	@	
Miscellaneous . . .	14,072	15,195	12,829	21,783	11,688	2,135	31,538	
State Govt. Subsidies .	...	...	30,000		...	5,78,700	40,000	**Including Rs. 39,148 on account of flight s of State Govt. of Officials.
Total Income . . .	2,70,661	1,72,943	2,07,413	1,91,456‡	2,40,087	7,22,273	1,09,212	
Expenditure . . .	2,95,772	2,16,952	2,11,254	1,28,825	2,60,380	3,56,482	73,215	@Includes Rs. 25,654 on account of servicing of non-club aircraft.
Profit (+) . . .	25,111 (—)	43,952 (—)	3,841 (—)	62,631‡ (+)	20,293 (—)	3,65,791 (+)	35,997 (+)	
Loss (—) . . .	...	...	...	...	...	...	...	

STATEMENT IV

Statement giving the particulars of the income and the Financial Assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during the year ending the 31st March, 1949.

Particulars	Bombay	Delhi	Bihar	Bengal	Madras	Hind Provincial	Orissa	Northern India	Madhya Pradesh
Central Government Fixed Subsidy .	30,000	30,000	30,000	30,000	30,000	22,500†	30,000	12,500	12,500
Flying Subvention & Bonus Excess 1000 hours flying	1,22,476	68,607	15,258	75,072	1,08,009	1,01,209	17,843	8,725	1,337
Bonus "A" Licence	8,000	3,000	250	6,250	3,500	6,750	1,250	1,750	...
Petrol Rebate	...	...	...	...	...	...	...	...	...
Special Grant (Recurring)	...	...	...	...	...	...	...	...	...
Total	1,60,476	1,01,607*	45,508	1,11,322	1,41,509	1,30,459	49,093§	22,975§	13,837
Members Subscriptions	26,680	24,921	14,527	38,041	9,950	8,160	3,675	2,045	10,975
Flying Fees	93,784	54,586	13,797	60,371	76,608	1,20,639	14,702	9,683	1,876
Joy Rides & Charters	1,436	535	35,377	210	1,280	...	189	880	...
Miscellaneous	12,570	22,347	11,673	18,875	6,536	410	23,495	10,170§§	6,518
State Government Subsidies . .	38,933	...	30,000	...	...	2,08,600‡	40,000		75,000
Total Income	3,33,879	2,03,996	1,50,982	2,28,219	2,35,883	4,68,268	1,31,154	45,753	1,08,206
Expenditure	3,32,987	2,59,996	1,87,141	2,21,198	3,04,472	4,53,492	1,07,005	94,858	35,138
Profit (+) } Loss (—) }	892 (+)	56,000 (—)	36,256 (—)	7,621 (+)	68,589 (—)	14,776 (+)	24,149 (+)	49,105 (—)	73,068 (+)

REMARKS.

*In addition a special grant of Rs. 20,000 was given to enable the club to meet a part of losses along with a further sum of Rs. 40,000 as a repayable loan granted.

†All the figures are for 9 months from July '48 to March 1949.

‡In addition a Capital grant of Rs. 2,34,100 was given by the State Government for purchase of aircraft.

§In addition a Capital grant of Rs. 25,000 was granted for Hanger.

§§Capital grant of Rs. 3,00,000 was given by the State Government for the rehabilitation of Club.

STATEMENT V

Statement giving the particulars of the income and the Financial Assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the amount of the profitor loss made by them during the year ending the 31st March, 1950.

Particulars	Bombay	Delhi	Bihar	Bengal	Madras	Hind Provincial	Orissa	Northern India	Madhaya Pradesh
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Central Government fixed subsidy .	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Flying Subvention and Bonus excess 1000 Flying hours	1,71,677	69,558	41,776	1,14,172	75,719	1,24,000	32,006	66,037	32,640
Bonus " A" Licence.	6,500	7,750	5,000	5,000	5,000	7,250	2,250	8,000	3,250
Petrol Rebate	24,858	10,642	11,602	...	12,003	...	5,127	11,741	...
Special Grant	10,000	£20,000	‡10,000	‡7,226	‡10,000	‡10,000	‡10,000	‡10.000	‡10,000
TOTAL	2,43,035	1,37,980	98,378	1,56,898	1,32,722	1,71,250	77,770	1,25,778	75,890
Members subscriptions . . .	24,410	20,482	8,248	27,053	12,146	7,016	2,963	3,985	12,335
Flying Fees	1,96,178	71,658	44,029	89,336	83,550	1,63,624	31,511	74,132	35,837
Joy Rides and Charters . . .	1,366	305	35,134	...	1,010	2,363	295	...	240
Miscellaneous	36,479	27,231	12,627	20,006	14,860	11,688	22,319	26,127	9,222
State Government—Subsidies . .	@@ 2,34,281	...	£££ 30,000	...	@ 44,161	3,75,450 ££	30,000	...	75,000
TOTAL INCOME .	7,35,749	2,57,656	2,28,416	2,93,293	2,78,449	7,31,391	1,64,858	2,30,022	2,08,524

1	2	3	4	5	6	7	8	9	10
Expenditure	5,47,353	2,82,463	2,45,374	2,76,135	2,93,222	9,06,020£	1,39,097	2,28,368	1,98,974
Profit (+)	1,88,396	24,807	16,958	17,158	14,773	1,74,629	25,761	1,655	9,550
Loss (—)	(+)	(—)	(—)	(+)	(—)	(—)	(+)	(+)	(+)

@@Subsidy 35,000 Bonus A licence. 8,500 Flying Subsidies 1,90,781.

£££In addition a sum of Rs. 61,000 was given by the State Government as under :—

For Equipment . . .	20,000
For Spares	5,000
For Staff quarters . . .	25,000
Stipend trainee . . .	1,000

‡For purchase of spares.

£10,000 for Spares

10,000 additional grant to meet a part of losses of . 1948—49.

@Subsidy	25,000
Flying Subvention	19,161
	44,161

In addition a sum of Rs. 34, 925 was given by the State Government as one half of the loss sustained by the club during 1948-49.

££In addition a capital grant of Rs. 2,34,100 was given by the State Government for buildings, furniture spares, tools, etc.

STATEMENT VI

Statement giving the particulars of the income and the Financial Assistance which the Flying Clubs in India received together with the amount of the total expenditure incurred and the profit or loss made by them during the year ending the 31st March, 1951

Particulars 1	Bombay 2	Delhi 3	Bihar 4	Bengal 5	Madras 6	Hind Provincial 7	Orissa 8	Northern India 9	Madhya Pradesh 10	G.F.T.S. Bangalore 11
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Central Government—Fixed subsidy.	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	27,500
Fying Subvention and Bonus Excess—*1,000 hours Flying.	1,34,773	61,831	33,940	75,553	1,09,830	1,18,958	21,366	70,825	36,540	17,348
Bonus "A" Licence . .	8,000	2,500	3,500	3,500	7,250	8,500	2,250	3,250	3,250	1,500
Petrol Rebate . . .	20,242	6,476	6,146	13,669	15,935	10,603	3,692	12,099	8,097	3,089
Special Grant (Recurring) .	..	50,000		..	..	..	..	X2,500	..	..
TOTAL .	1,93,015	1,50,807	73,586	1,22,722	1,63,015	1,68,061	57,30,8	1,18,674	77,887	49,437
Members Subscriptions .	34,505	22,388	5,920	20,77	13,176	7,070	1,468	5,075	5,155	1,400
Flying Fees . . .	1,53,627	72,408	38,438	98,381	1,20,214	1,15,975	25,308	81,606	45,002	27,812
Joy Rides and Charters .	2,704	1,220	38,505	304	6,865	647	819	..	..	330
Miscellaneous . . .	16,040	23,467	13,141 ££	24,901	5,680	18,943	24,372	26,381	6,392	8,993
State Government-Subisidies	XX1,72,148	..	30,000	..	50,254	4,93,900	20,000	..	75,000	55,081
TOTAL INCOME .	5,72,039	2,70,290	1,99,590	2,67,086	3,59,213	8,04,596	1,29,275	2,31,736	2,09,436	1,43,053

1	2	3	4	5	6	7	8	9	10	11
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Expenditure . . .	5,91,840	2,78,076	2,15,572	3,12,400	3,52,587	9,46,422	1,32,137	2,80,673	1,93,504	1,43,053
Profit (+) . . . Loss (—) . . .	19,801	7,786	15,982	45,314	6,626 (—)	1,41,826 (—)	2,862 (—)	48,937 (—)	15,932 (+)	..

REMARKS

££ In addition a sum of Rs. 36,000 was paid by State Government for stipends to be paid to trainees.

£££ In addition a capital grant of Rs. 37,628 was given for spares.

X For maintenance of landing ground.

XX Subsidy 30,000, Bonus 'A' licence 8,000, Flying Subvention 1,34,148.

STATEMENT VII

7 Statement giving the particulars of the income and the Financial Assistance which the Flying Clubs in India Received together with the amount of the total expenditure incurred and the amount of the profit or loss made by them during the year ending the 31st March, 1952

Particulars	Bombay	Delhi	Bihar	Bengal	Madras	Hind Provincial	Orissa	N.I.F.C.	Madhya Pradesh	G. F. T. S Bangalore
Central Government fixed subsidy	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Flying subvention bonus excess 1,000 hrs. flying.	1,45,192	61,831	26,512	87,223	82,345	1,14,334	11,770	55,985	36,540	23,082
Bonus 'A' licence	9,500	2,500	2,750	4,500	4,500	7,250	2,500	4,500	3,250	1,500
Petrol rebate	16,929	6,476	3,556	..	10,037	17,464	1,545	6,083	8,097	3,316
Special grant	..	50,000	..	..	..	..	..	2,500†	..	..
TOTAL	2,01,621	1,50,807	62,818	1,21,723	1,26,882	1,69,048	45,815	99,068	77,887	57,898
Members subscriptions	44,426	22,388	4,820	20,359	9,916	7,095	835	9,200	5,155	3,670
Flying fees	1,82,742	72,408	32,864	94,275	94,287	1,25,487	15,967	59,022	45,002	29,641
Joy rides and Charters	918	1,220	28,247	549	8,440	4,611	240	75	..	305
Miscellaneous	7,709	23,467	25,852	38,790	2,947	21,587	3,252	34,304‡	6,392	7,594
State Government subsidy	1,84,692*	..	33,000	..	51,690**	4,82,000	19,500	..	75,000	38,930
Total Income	6,22,108	2,70,290	1,87,601	2,75,696	2,94,157	8,09,828	85,609	2,01,669	2,09,436	1,38,038
Expenditure	6,01,782	2,78,076	2,15,521	3,31,208	3,18,594	8,48,460	1,21,442	2,57,161	1,93,504	1,38,038
Profit (+) Loss (—)	(+)20,326	(—) 7,786	(—) 27,920	(—) 55,512	(—)24,337	(—)38,632	(—)35,833	(—)55,492	(+)1,13,116	..

* Subsidy 30,000 Bonus 'A' Licence 9,500 Bonus Excess 1,000 hours 28,414 Flying Subvention 1,16,778.

**Subsidy 25,000 Flying Subvention 21,600.

† For maintenance of landing ground.

‡ Including Rs. 27,873 realised as donations.

STATEMENT VIII

Statement giving the particulars of (1) the detailed breakdown of expenditure (2) the number of aircraft under operation (3) the number of hours flown (4) the value of aircraft and properties owned by the clubs (5) the working cost per hour of all the subsidised Flying Clubs in India during the period of six years ending 31st March, 1952

Particulats	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	Remarks
No. of clubs	5	7	9	9	10	10	
Expenditure Pilots	1,31,856	3,46,633	3,96,868	4,09,468	3,73,423	3,51,748	*Including the Expenditure on Engineers and Maintenance staff of Hind Provl. flying Club.
Expenditure Ground Instructors	..	6,000	..	..	11,427	16,378	
Expenditure Engineering Staff	1,17,758	2,05,117	2,49,907	5,41,418	5,44,156	5,27,235	
Expenditure Admn.	62,874	1,12,211	1,42,020	2,45,176	2,88,293	3,16,109	
Depreciation Club a. c.	12,241	65,557	1,04,558	1,68,186	1,91,101	1,88,414	
Depreciation other Property	20,928	36,042	42,405	57,669	81,983	85,852	
Insurance and Registration aircraft	18,995	34,360	48,956	1,15,942	1,32,566	96,169	
Contribution to accident reserve fund	17,057	33,825	94,596	1,48,833	1,38,593	1,03,010	
Petrol and Oil	1,33,787	2,97,342	4,08,079	6,93,141	7,39,187	6,13,758	
Spare consumed	46,949	1,18,993	1,92,048	3,53,935	3,43,925	3,04,816	3,92,738
Landing and Housing Charges	97	3,770	4,423	10,445	14,466	4,863	9,299

Travelling expenses	11,382	26,343	44,398	42,505	36,796	28,741
Provident Fund	5,663	8,558	30,694	26,293	38,229	27,267
Maintenance State Government a.c.	2,180	72,187	52,163	40,922	2,15,367	2,47,269
Loss on social activities	12,903	9,922	18,810	32,169	49,667	13,763
Other expenses	83,511	1,35,763	1,96,362	2,22,883	2,60,747	2,85,940
Total expenditure	6,77,881	15,42,623	19,96,287	31,17,005	34,56,936	33,03,786
Aircraft club owned	9	43	48	78	86	81
Aircraft Government loaned	17	22	33	42	51	41
Hours flown	10,952	21,928	26,067	36,078	33,310	31,767
Direct cost per hour	16·39	19·78	22·86	26·70	33·62	34·27
Indirect cost per hour	41·87	126·90	87·62	58·38	68·88	71·45
Total cost per hour	58·26	146·68	120·58	85·08	101·50	105·72
Value of clubs aircraft (original)	65,144	4,12,732	5,92,452	8,06,338	9,88,181	..
Value of other property (original)	2,35,701	2,31,039	5,04,387	6,84,479	7,95,433	..

STATEMENT No. IX

9. Statement giving the following particulars in connection with each of the Flying clubs in India for the year ending the 31st March, 1947.

(i) The detailed breakdown of expenditure, (ii) The number of aircraft under operation, (iii) The number of hours flown, (iv) The value of aircraft and other properties, (v) The working cost per hour.

Particulars	Bombay	Bihar	Bengal	Madras	Delhi	Remarks
Expenditure Pilots	23,168	25,764	14,418	40,598	26,780	
Expenditure Ground Instructors	...	...	...	...	...	
Expenditure Engineering staff	32,666	23,309	12,345	26,452	24,114	
Expenditure Administration	17,824	12,507	7,805	13,253	11,485	
Depreciation Aircraft (Club)	3,458	...	1,936*	...	6,847	*Depreciation charged on Govt. loaned aircraft.
Depreciation other Property	6,512	3,980	5,218	1,064	4,154	
Insurance and Registration Aircraft	6,283	@	1,600	6,625	4,487	@Neither the aircraft were insured nor contribution were made to the A. R. F.
Contribution to Accident Reserve Fund	...	@	3,692	8,381	4,984	
Petrol and Oil	22,105	31,230	14,336	33,213	32,903	
Spares	15,412	2,097	8,195	6,861	14,084	
Landing and Housing Charges	15	...	21	53	8	
Travelling Expenses	11,920	2,950	575	3,665	282	

Provident Fund	1,225	3,590	...	848	...
Maintenance State Government Aircraft	...	2,180	...	...	...
Loss on Social Activities	9,516	...	3,366	21	...
Other Expenses	10,619	12,197	29,304	12,708	18,683
Total Expenditure	1,50,723	1,19,804	1,02,811	1,53,732	1,50,811
Aircraft Club owned	2	...	...	6	1
Aircraft Government loaned	2	5	4	1	5
Hours flown	2,132	2,020	1,444	28·64	24·92
Direct Cost per hour	17·11	16·48	15·60	14·00	18·76
Indirect cost per hour	46·06	39·77	45·12	39·13	39·27
Total Cost per hour	63·17	56·25	60·72	53·13	58·03
Value of Clubs aircraft original	31·70	...	...	...	34,074
Value of other properties	82,380	45,403	38,312	15,041	54,664

STATEMENT No. X

10. Statement giving the following particulars in connection with each of the Flying Clubs in India for the year ending the 31st March, 1948.

(*i*) *The detailed breakdown of expenditure,* (*ii*) *The number of aircraft under operation,* (*iii*) *The number of hours flown,* (*iv*) *The value of aircraft and other properties,* (*v*) *The working cost per hour.*

Particulars	Bombay	Bihar	Bengal	Madras	Delhi	Hind Provl.	Orissa	Remarks
Expenditure Pilots	36,199	34,703	24,625	42,863	37,799	...	15,144	
Expenditure Ground Instructors . .	...	...	...	...	...	...	6,000	
Expenditure Engineering Staff . .	56,730	23,600	25,217	31,518	43,083	1,55,300	24,969	
Expenditure Administration . .	28,129	16,385	14,534	21,646	23,364	...	8,153	
Depreciation Aircraft (Club) . .	18,073	...	4,663	4,752	8,957	57,277	1,835	
Depreciation other properties . .	10,629	9,289	2,042	1,256	7,130	4,060	1,636	
Insurance and Regis. A/c. . .	7,652	5,064	3,730	11,588	3,416	1,510*	1,400	*Only state Government aircraft were insured.
Contribution to Accident Reserve Fund	...	14,190	4,930	9,125	5,326	...	254	
Petrol and oil	64,772	55,468	23,579	71,407	42,098	37,856	2,162	
Spares	33,772	7,124	7,166	42,807	20,229	6,948	947	
Landing and Housing charges . .	3,087	389	79	47	7	161	...	
Travelling Expenses	1,131	2,217	2,656	3,161	598	12,307	4,273	
rovident Fund	2,878	4,413	...	1,267	...	...	...	

Maintenance State Government A/c.	...	20,141	...	...	...	52,046†	...	†Rs. 28,402 Depreciation aircraft. Rs. 23,644 Maintenance.
Loss on Social Activities	8,825	468	...	...	...	...	629	
Other Expenses	23,895	17,603	15,604	18,943	24,888	29,017	5,813	
Total Expenditure	2,95,772	2,11,054	1,28,825	2,60,380	2,16,895	3,56,482	73,215	
Aircraft Club owned	5	...	2	5	3	27	1	
Aircraft Government Loaned	3	6	3	2	4	2	2	
Hours flown	5,608	3,174	18,50	45,63	1,663	4,556	114	
Direct cost per hour*	19·60	19·70	16·62	25·03	23·38	9·83	24·26	*Consists of petrol and Spares.
Indirect cost per hour	34·68	42·95	46·48	31·50	51·83†	68·41	612·46	†Including Rs. 11·4 per hour on account of maintenance of State aircraft.
Total Cost per hour	54·35	62·65	63·10	56·53	75·21†	78·24	636·72	
Value of clubs aircraft original	1,91,238	...	29,400	46,975	44,342	1,90,923	9,854	
Value of other Properties	1,16,765	45,951	18,937	8,355	74,396	38,400	28,235	

STATEMENT No. XI

Statement giving the following particulars in connection with each of the Flying clubs in India for the year ending the 31st March 1949.

(i) The detailed breakdown of expenditure, (ii) The number of aircraft under operation, (iii) The number of hours flown, (iv) The value of aircraft and other properties. (v) The working cost per hour.

Particulars	Bombay	Bihar	Bengal	Madras	Delhi	Hind Provl.	Orissa	Northern India	Madhya Pradesh	Remarks
Expenditure pilots . .	49,199	20,580	25,648	35,617	39,424	...	27,446	13,559	12,345	
Expenditure on Ground Instructors . . .	...	...	...	...	...	...	...	...	...	
Expenditure Engineering Staff . . .	52,715	14,474	40,089	42,120	47,736	173,050*	25,226	12,486	10,061	
Expenditure Admn. .	33,505	15,570	14,999	26,752	27,446	...	7,146	15,568	1,034	
Depreciation a/c (Club) .	18,786	1,581	7,055	14,014	5,123	56,679	1,320	...	...	
Depreciation other property . . .	15,011	4,349	1,740	1,574	7,982	8,013	1,600	2,136	...	
Insurance aircraft . .	16,850	2,500	8,354	4,352	6,220	2,355†	190‡	5,142	3,003	
Contributions to Accident Reserve Fund . .	6,988	1,822	6,910	24,029	6,079	33,190	14,366§	1,070	142	
Petrol and Oil . .	73,289	33,139	56,038	85,134	52,134	23,741	14,078	8,221	2,303	
Spares . . .	22,679	10,507	25,782	34,840	31,347	31,708	4,194	609	382	
Landing and Hous charges . . .	3,108	123	182	2	156	744	48	60	...	
Tarvelling expenses .	4,904	5,941	4,201	2,857	1,073	11,012	2,949	8,610	2,851	

Provident Fund . .	3,089	4,615	6,540	4,061	...	5,823	...	6,566	...
Maintenance of State Government aircraft .	...	36,763	...	...	...	15,400	...	...	...
Loss on Social Club .	15,581	...	...	1,874	...	...	...	...	...
Other Expenses . .	17,283	35,177*	23,650	22,246	35,266	31,777	7,822	20,096	3,015
Total . .	332,987	187,141	221,198	304,472	259,996	453,492†	†107,005	94,858	35,138
Aircraft Government loaned . . .	3	6	5	2	5	3	4	2	3
Aircraft Club owned .	9	1	5	7	4	21	1	...	...
Hours flown . . .	5359	1862	3455	4010	3091	5898	976	535	81
Direct cost per hour .	17·91	23·76	23·68	24·94	27·33	19·57	18·82	16·49	33·26
Indirect cost per hour .	39·07	62·38	36·36	37·68	50·16	57·31	90·55	103·05	402·01
Total cost per hour .	56·98	86·14	60·04	62·62	77·49	76·88	109·37	119·54	435·27
Value of Club aircraft (Original) . . .	130,725	15,834	36,371	52,534	29,296	302,289	25,403	...	...
Value of other property (original) . . .	169,830	40,212	15,561	22,617	81,216	75,494	49,023	38,755	11,679

* Includes Expenditure on Pilots and Administrator Staff.
† Only state Government Aircraft, are insured.
‡ Covered with accident reserve fund.
§ Includes initial deposit of Rs. 10,000.
* Includes Rs. 10,000 paid for income tax.
†† All the figures are for 9 months from July 1948 to March, 1949.

STATEMENT No. XII

Statement giving the following particulars in connection with each of the Flying clubs in India for the year ending the 31st March, 1950.

(i) *The detailed breakdown of expenditure,* (ii) *The number of aircraft under operation,* (iii) *The number of hours flown,* (iv) *The value of aircraft and other properties,* (v) *The working cost per hour.*

Particulars	Bombay	Bihar	Bengal	Madras	Delhi	Hind Provl.	Northern India	Orissa	Madhya Pradesh	Remark
Expenditure on Pilots .	51,717	32,055	35,158	21,501	42,885	121,152*	32,500	29,434	43,086	
Expenditure on Ground Instructors . . .	...	...	...	...	...	...	...	...	...	
Expenditure on Engr. .	74,967	31,336	49,569	60,403	49,194	160,000	20,084	25,978	59,878	
Expenditure on Admn. .	49,394	22,243	18,206	30,948	28,980	68,417	20,156	8,947	6,888	
Depreciation of a/c Club . . .	27,089	3,958	15,150	18,936	3,244	85,157	7,106	4,845	2,701*	
Depreciation of other property . . .	15,929	7,990	1,290	3,174	5,672	17,082	4,531	1,545	456	
Insurance of aircraft .	21,787	1,646	17,054	685 *	15,250	25,834†	13,550	4,242	15,894	
Contributions to accident reserve fund . .	52,270	10,703	9,672	21,213	5,894	37,543	5,963	1,908	3,667	
Petrol and Oil . .	1,18,479	53,967	70,742	73,224	59,784	190,575	67,623	27,184	31,563	
Spares . . .	73,458	22,310	23,558	34,393	33,552	120,543	14,775	12,731	18,615	
Landing and Housing Charges . . .	3,338	241	382	8	4,908	804	615	99	...	

* Insured against Third Party risk only by A. R. F.

† Only state Government aircraft are insured. Others covered by accident reserve fund.

Travelling Expenses .	1,673	3,870	3,548	3,431	252	17,603	6,695	1,570	3,863
Provident Fund . .	3,568	6,344	3,288	4,160	...	8,933	...	...	...
Maintenance of State Government aircraft .	18,266	31,656	...	...	...	...	...	...	... ‡
Loss on social club . .	22,829	3,244	4,663	1,251	...	...	18	164	...
Other expenses . . .	21,539	14,811	23,855	19,895	32,848	52,371	24,751	20,450	12,363
Total . . .	5,43,353	245,374	276,135	293,222	282,463	906,020	228,367	139,097	198,974
Aircraft club owned .	9	2	12	8	7	31	4	3	2
Aircraft Government loaned . . .	3	4	6	5	6	6	4	5	3
Hours flown . . .	7,467	3,067	4,836	3,800	3,356	7,168	3,118	1,496	1,770
Direct cost per hour* .	25·71	25·66	19·39	28·31	30·55	33·41	26·40	22·49	28·35
Indirect cost per hour .	43·06	52·33	34·23	48·14	55·28	92·99	46·09	69·58	83·75
Total cost per hour .	68·77	77·99	53·62	76·45	85·83	126·40†	72·49	92·07	112·10
Value of club aircraft (original) . . .	1,21,585	15,834	86,705	93,926	33,096	440,160	62,294	26,340	13,103
Value of other property (Original) . . .	1,88,679	1,54,522	17,098	31,741	6,486	1,11,286	45,183	55,400	31,982

‡ No separate record was maintained during the year.
* Consisting of Petrol and Oil and spares.
† Inclusive of State Government twin engined aircraft.

STATEMENT XIII

13. Statement giving the following particulars in connection with each of the Flying Clubs in India for the year ending the 31st March 1951.

(i) *The detailed breakdown of expenditure,* (ii) *The number of aircraft under operation,* (iii) *The number of hours flown,* (iv) *The value of aircraft and other properties,* (v) *The working cost per hour.*

Particulars	Bombay	Bihar	* Bengal	Madras	Delhi	Hind Provl.	Orissa	Northern India	Madhya Pradesh	G.F.T.S. Bangalore
Expenditure on Pilots .	59,244	20,209	25,258	25,832	43,304	1,15,936	14,954	38,354	11,794	19,538
Expenditure on Ground Instructors . .	8,427	...	...	...	...	...	...	...	3,000	...
Expenditure on Engineering Staff . . .	91,536	26,910	54,307	69,545	48,904	1,55,735	31, 294	32,388	42,203	34,984
Expenditure on Admn. .	43,744	22,910	37,191	29,741	30,716	73,945	9,417	21,395	9,751	9,483
Depreciation of a/c Club .	35,356	3,958	7,050	22,741	4,399	87,908	2,441	14,540	6,609	6,600
Depreciation of other property	17,717	11,380	2,917	3,663	8,612	22,488	2,168	6,250	4,551	2,237
Insurance & Registration of aircraft. . . .	35,558	5,481	23,726	**362	18,539	1,600	9,70 0	17,770	14,992	6,838
Contribution to accident reserve fund . . .	41,538	6,827	7,444	**30,558	5,005	34,801	1,834	6,244	4,342	...
Petrol & Oil . . .	1,14,213	57,460	73,563	98,575	50,837	1,61,691	26,561	83,797	51,365	21,125
Spares	77,155	13,129	34,624	49,683	32,306	65,160,	18,992	28,797	16,430	7,650
Landing and Housing charges . . .	7,670	442	284	...	1,664	4,036	59	294	...	16
Travelling Expenses . .	3,663	2,015	1,302	2,334	157	18,897	1,665	3,669	3,065	28

Provident Fund	3,826	4,807	2,762	4,992	...	20,466	1,376	...	...	...
Maintenance state Govt. aircraft	51,129	25,540	...	...	...	1,02,838	...	...	35,870†	...
Loss on social activities	31,041	7,141	9,558	1,376	...	...	135	416	...	...
Other Expenses	15,673	7,363	32,414	13,686	25,085	81,921	12,916	25,383	11,752	***34,554
Total expenditure	5,91,840	2,15,572	3,12,400	3,52,587	2,69,528	9,46,422	1,32,137	2,80,673	2,12,724	1,43,053††
Aircraft club owned	11	2	11	10	6	29	3	5	7	...
Aircraft club loaned	4	6	6	6	6	7	4	5	4	...
Hours flown	5,934	2,502	3,717	4,944	2,537	6,026	1,134	3,245	2,200	...
Direct cost p.h.	32·26	28·20	29·11	29·99	32·22	42·69	38·38	34·69	30·82	...
Indirect cost p.h.	61·15	52·26	44·84	40·88	67·81	114·37†	77·55	50·87	71·51§	...
Total cost p.h.	†††93·41	‡80·46	73·95	70·77	101·03	157·06*	115·93	85·56	103·33§	...
Value of clubs a.c. original	1,71,417	15,834	54,853	1,14,740	62,996	4,42,223	26,340	66,199	22,587	...
Value of other properties	2,02,422	1,57,301	29,529	36,631	85,447	1,40,426	56,511	59,334	32,832	...

* The figures have been taken from un-audited accounts.

**Insured against third party risk covered with ARF.

†Salary of one pilot & engrg. staff.

*Inclusive of Rs. 17·52 state govt. aircraft.

***Includes Rs. 28,019 on a.c. of maintenance of repair of Hanger.

††The figures have been taken from unaudited accts. The audited accts. have not been recd. so far.

‡Including Rs. 10·21 p.h. on account of maintenance of state govt. aircraft.

§Including Rs. 16·30 p.h. in respect of maintenance of state govt. aircraft.

†††Including Rs. 8·62 p.h. in respect of maintenance of state govt. aircraft.

STATEMENT XIV

14. Statement giving the following particulars in connection with each of the Flying Clubs in India for the year ending the 31st March 1952.

(i) *The detailed breakdown of expenditure,* (ii) *The number of aircraft under operation,* (iii) *The number of hours flown,* (iv) *The value of aircraft and other properties,* (v) *The working cost per hour.*

Particulars	* Bombay	* Bihar	* Bengal	* Madras	* Delhi	Hind Provl.	* Orissa	Northern India	Madhya Pradesh	G.F.T.S. Bangalore
Expenditure on Pilots .	52,516	15,027	35,523	25,475	43,364	91,860	15,422	38,888	11,245	19,428
Expenditure on Ground Instructors . . .	13,378	...	...	...	...	...	...	...	3,000	...
Expenditure on Engrg. staff	83,712	21,451	60,250	71,053	46,841	1,29,201	28,671	29,950	31,486	24,620
Expenditure on Admn. .	44,168	24,625	43,443	28,861	32,875	91,187	10,412	16,387	10,510	13,641
Depreciation on a/c Club .	60,302	...	11,940	21,736	4,453	60,500	2,500	13,656	5,077	8,250
Depreciation other property	18,651	11,722	3,126	3,512	8,275	23,083	1,688	6,102	4,581	5,112
Insurance and registration of a/c	25,484	5,448	15,499	182	14,400	1,506	8,150	16,800	2,857	5,803
Contribution to accident reserve fund . .	13,794	4,863	14,759	24,005	5,564	30,000	1,428	5,106	3,491	...
Petrol and Oil . . .	97,206	51,190	64,160	83,242	55,900	1,14,075	16,341	64,273	41,676	25,695
Spares	76,628	25,737	40,285	37,039	38,458	87,922	13,812	35,120	22,694	15,043
Landing and Housing charges	4,033	243	...	98	1	4,436	147	304	26	11
Travelling expenses . .	1,477	914	451	1,750	...	16,725	3,568	2,645	1,211	...
Provident Fund . .	3,572	4,805	3,786	5,670	...	8,416	...	1,018	...	...

Maintenance State Govt. aircraft . . .	69,645	29,946	..	..	..	1,02,838	..	..	44,940£	..
Loss of social activities .	1,454	948	11,361	..	..	..	..	..	..	..
Other expenses . .	35,762	18,606	26,625	115,971	24,905	86,711	19,363	26,912	10,710	20,435@
Total expenditure . .	6,01,782	2,15,521	3,21,208	3,18,594	2,78,076	8,48,460	1,21,442	2,57,161	1,93,504	1,38,038
Aircraft club . . .	13	..	4	6	4	32	3	..	9	4
Aircraft Govt. loaned .	2	4	6	4	5	6	2	..	4	3
Hours flown . . .	7,001	2,349	3,618	3,671	2,807	6,029	744	2,553	1,790	,205
Direct cost p.h. . .	26·81	32·75	28·89	32·76	33·65	38·55	40·53	38·93	35·97	33·81
Indirect cost p.h. . .	*59·15	52·81	51·04	54·01	58·93	102·18	122·70	60·80	72·14%	80·74
Total cost p.h. . . .	*85·96	85·56	79·93	86·77	92·53	140·73**	163·23	99·73	108·11%	114·55%
Value of clubs aircraft orgl.	..	..	..	..	35,996	..	..	80,229	..	..
Value of other property orgl.	..	1,58,899	..	..	87,735	..	..	61,448	..	..

P. The figures have been taken from unaudited accounts.

£Salary of one pilot and the endgrg. staff.

@Including Rs. 10,367 on account of maintenance and Repair of Hangar.

%Includes Rs. 25·10 p.h. on account of maintenance of State Govt. aircraft.

*Includes Rs 9.95 per hour for maitenance of Govt. air craft.

**Including Rs. 17·55 on account of maintenance of state govt. aircraft.

STATEMENT XV

Statement giving the following particulwrs in connection with the aircraft owned by and loaned by the Government to all the Flying Clubs in India during each of the six years ending the 31st March, 1953.

(i) *Aircraft at the beginning of the year*, (ii) *Airacarft added during the year*, (iii) *Aircraft writen off during the year*, (iv) *Aircraft at the end of the year.*

Year	Particular	Club owned														Govt. loaned			
		Tiger	L-5	Piper	Argus	Bonanza	Aeronca	Harvard	Chipmunk	Auster	Silvaire	Prooctor	Expedi o	Aero 45	Total	Tiger	L-5	Chipmunk	Total
1946-47	Addition	10	1	..	..	..	..	..	1	1	..	..	..	..	12	12	8	..	20
	Written off	2	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	3
	Balance	8	1	..	..	..	..	..	..	1	..	..	..	..	10	9	8	..	1
1947-48	Addition	13	13	11	2	..	..	1	..	..	..	..	..	..	40	..	6	..	6
	Written off	4	..	..	1	..	..	1	..	1	..	..	..	..	7	3	..	..	3
	Balance	17	14	11	1	..	..	..	..	..	..	..	..	..	43	6	14	..	20
1948-49	Addition	7	3	1	..	2	3	..	1	2	..	..	..	..	19	16	3	9	28
	Written off	1	..	..	1	..	..	..	1	..	..	..	..	..	3	3	4	1	8
	Balance	23	17	12	..	2	3	..	..	2	..	..	..	..	59	19	13	8	40
1949-50	Additions	13	15	..	2	1	..	..	..	1	3	1	2	..	38	4	..	9	13
	Written off*	11	9	2	1	..	1	..	..	..	..	..	..	..	24	2	5	2	9
	Balance	25	23	10	1	3	2	..	..	3	3	1	2	..	73	21	8	15	44
1950-51	Additions	..	24	1	..	1	2	..	..	..	..	..	..	..	28	6	..	2	8
	Written off	3	4	1	..	..	..	..	..	..	..	..	..	..	8	5	..	1	6
	Balance	22	43	10	1	4	4	..	..	3	3	1	2	..	93	22	8	16	46
1951-52	Additions	1	1	6	..	..	..	..	..	..	..	..	..	1	9	2	..	1	3
	Written off	5	4	1	..	..	1	..	..	2	..	..	..	..	13	3	3	2	8
	Balance	18	40†	15	1	4	3	..	..	1	3	1	2	1	89	21	5	15	41

*2 were sold by the Bombay Flying Club.

†C of A of one expired on 22-4-50. 11 are unserviceable with Madras Flying Club.

††Sold

STATEMENT XVI

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Bombay Flying Club during each of the six years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (iii) *Aircraft written off during the year,* (iv) *Aircraft at the end of the year.*

Club	Year		Tiger Moth	Pipers	Argus	Bonanza	L-5	Aeronaca	Auster	Harvard	Chipmunks	Total	Govt. Loaned			
													L-5	Tiger Moth	Chipmunk	Total
Bombay	1946-47	Additions	3	..	..	..	..	..	..	..	..	3	2	2	..	4
		Written off	1	..	..	..	..	..	..	..	..	1	..	1	..	1
		Balance	2	..	..	..	..	..	..	..	..	2	2	1	..	3
	1947-48	Additions	7	..	..	..	..	..	..	..	..	7	..	..	..	..
		Written off	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		Balance	9	..	..	..	..	..	..	..	..	9	2	1	..	3
	1948-49	Additions	3	..	..	..	..	..	..	..	..	3	..	..	1	1
		Written off	..	..	..	..	..	..	..	..	..	..	..	1	..	1
		Balance	12	..	..	..	..	..	..	..	..	12	2	..	1	3
	1949-50	Additions	4	..	2	..	..	..	..	..	..	6	..	..	2	2
		Written off*	7	..	1	..	..	..	..	..	..	8	..	..	..	..
		Balance	9	..	1	..	..	..	..	..	..	10	2	..	3	5
	1950-51	Additions	..	1	..	1	..	..	..	..	..	2	..	1	..	1
		Written off	2	..	..	..	..	..	..	..	..	2	..	..	..	..
		Balance	7	1	1	1	..	..	..	..	..	10	2	1	3	6
	1951-52	Additions	..	6	..	..	..	..	..	..	..	6	..	..	..	..
		Written off & sold	3*	..	..	..	..	..	..	..	..	3	2	1	1	4
		Balance	4	7	1	1	..	..	..	..	..	13	..	..	2	2

*2 Sold.

STATEMENT XVII

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Govt to Bengal Flying Club during each of the six years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (iii) *Aircraft written off during the year,* (iv) *Aircraft at the end of the year.*

Club	Year		Club owned										Govt. Loaned			
			L-5	Tiger Moth	Aero-naca	Pipers	Arg-us	Bona-za	Aus-ter	Har-vard	Chip-munk	Total	L-5	Tiger Moth	Chip-munk	Total
Bengal	1946-47	Additions	..	..	..	..	..	..	..	..	..	..	2	2	..	4
		Written off	..	..	..	..	..	..	..	..	..	..	..	1	..	1
		Balance	..	..	..	..	..	..	..	..	..	..	2	1	..	3
	1947-48	Additions	4	3	..	..	..	..	..	..	..	7	..	..	..	..
		Written off	..	2	..	..	..	..	..	..	..	2	..	..	..	..
		Balance	4	1	..	..	..	..	..	..	..	5	2	1	..	3
	1948-49	Additions	1	..	..	..	..	..	..	..	..	2	1	2	1	4
		Written off	..	..	..	..	..	..	..	..	..	1	2	1	..	3
		Balance	5	1	..	..	..	..	..	..	..	6	1	2	1	4
	1949-50	Additions	..	6	..	..	..	..	..	..	..	6	..	1	1	2
		Written off	3	..	..	..	..	..	..	..	..	6	..	..	..	..
		Balance	2	4	..	..	..	..	..	..	..	6	1	3	2	6
	1950-51	Additions	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		Written off	..	1	..	..	..	..	..	..	..	1	..	..	..	..
		Balance	2	3	..	..	..	..	..	..	..	5	1	3	2	6
	1951-52	Additions	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		Written off	..	1	..	..	..	..	..	..	..	1	..	..	..	..
		Balance	2	2	..	..	..	..	..	..	..	4	1	3	2	6

STATEMENT XVIII

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Govt. to the Bihar Club during each of the six years ending the 31st March 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (ii) *Aircraft at the end of the year,* (iv) *Aircraft written off during the year.*

Club	Years		L-5	Tiger Moth	Auster	Harvard	Pipers	Aeronca	Bonanza	Argus	Total	L-5	Tiger Moth	Chipmunk	Total
	1946-47	Additions	...	...	...	...	...	...	...	...	...	...	4	...	4
		Written off	...	...	...	...	...	...	...	...	...	...	1	...	1
		Balance	...	...	...	...	...	...	...	...	...	...	3	...	3
	1947-48	Additions	...	...	...	...	...	...	...	...	...	...	2	...	2
		Written off	...	...	...	...	...	...	...	...	...	...	...	2	2
		Balance	...	...	...	...	...	...	...	...	...	...	2	1	3
	1948-49	Additions	...	...	2	...	...	...	...	...	2	...	...	1	1
		Written off	...	...	...	...	...	...	...	...	...	1	...	...	1
		Balance	...	...	2	...	...	...	...	...	2	1	2	...	3
	1949-50	Additions	...	...	...	...	...	...	...	...	...	...	...	1	1
		Written off	...	...	...	...	...	...	...	...	...	...	...	1	1
		Balance	...	...	2	...	...	...	...	...	2	1	2	...	3
	1950-51	Additions	...	...	...	...	...	...	...	...	...	...	1	1	3
		Written off		...	...	...	...	...	...	...	...	...	1	...	1
		Balance	...	...	2	...	...	...	...	...	2	2	2	1	4
	1951-52	Additions	...	...	...	...	...	...	...	...	...	...	...	...	...
		Written off	...	...	2	...	...	...	...	...	2	...	...	...	...
		Balance	...	...	...	...	...	...	...	...	...	1	2	1	4

STATEMENT XIX

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Govt. to the Delhi Flying Club during each of the six years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year*, (ii) *Aircraft added during the year*, (iii) *Aircraft written off during the year*, (iv) *Aircraft at the end of the year.*

Club	Years		Club Owned									Govt. Loaned			
			L-5	Tiger Moth	Auster.	Harvard	Pipers	Aeronca	Bonanza	Argus	Total	L-5	Tiger Moth	Chipmunk	Total
Delhi	1946-47	Additions	1	...	1	...	...	...	...	...	2	2	4	...	6
		Written off	...	...	...	...	...	...	...	...	...	...	...	...	...
		Balance	1	...	1	...	...	...	...	...	2	2	2	...	4
	1947-48	Additions	...	2	...	1	...	...	...	...	3	...	...	...	...
		Written off & sold	...	...	1	1	...	...	...	...	2	...	1	...	1
		Balance	1	2	...	...	...	...	...	...	3	2	1	...	3
	1948-49	Additions	...	...	...	...	...	...	...	...	...	...	2	1	3
		Written off	...	...	...	...	...	...	...	...	...	1	...	...	1
		Balance	1	2	...	...	...	...	...	...	3	1	3	1	5
	1949-50	Additions	3	...	...	...	...	...	...	...	3	...	1	1	2
		Written off	...	...	...	...	...	...	...	...	...	1	...	...	1
		Balance	4	2	...	...	...	...	...	...	6	...	4	2	6
	1950-51	Additions	1	...	...	...	...	...	...	...	1	...	...	...	...
		Written off	4*	...	...	...	...	...	...	...	4	...	...	1	1
		Balance	1	2	...	...	...	...	...	...	3	...	4	1	5
	1951-52	Additions	1	...	...	...	...	...	...	...	1	...	...	...	...
		Written off	...	...	...	...	...	...	...	...	...	...	...	...	...
		Balance	2	2	...	...	...	...	...	...	4	...	4	1	5

*Unserviceable kept for salvages.

STATEMENT XX

Statement showing the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Madras Flying Club during each of the six years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year*, (ii) *Aircraft added during the year*, (iii) *Aircraft written off during the year*, (iv) *Aircraft at the end of the year.*

Club	Year		Club owned							Govt. Loaned		
			L-5	Tiger Moth	Piper	Aeronca	Auster	Total	-L5	Tiger Moth	Chipmunk	Total
Madras	1946-47	Addition	...	7	...	...	...	7	2	...	...	2
		Written off	...	1	...	...	...	1	...	...	...	...
		Balance	...	6	...	...	...	6	2	...	...	2
	1947-48	Additions	...	...	...	...	...	...	...	...	...	...
		Written off	...	2	...	...	...	2	...	...	...	...
		Balance	...	4	...	...	...	4	2	...	...	2
	1948-49	Addition	...	2	...	1	...	3	...	1	1	2
		Written off	...	1	...	...	...	1	...	1	...	1
		Balance	...	5	...	1	...	6	2	...	1	3
	1949-50	Additions*	2	...	...	...	1	3	...	1	2	3
		Written off	...	1	...	...	...	1	1	...	...	1
		Balance	2	4	...	1†	1	8	1	1	3	5
	1950-51	Addition*	9	...	...	...	...	9	...	...	...	...
		Written off	...	...	...	...	...	...	...	1	...	1
		Balance	11	4	...	1†	1	17	1	...	3	4
	1951-52	Addition	...	...	...	...	...	...	...	...	...	...
		Written off	...	1	..	...	...	1	...	...	...	...
		Balance	11	3	...	1†	1	16	1	...	3	4

*Unserviceable bought from disposals.

†Grounded from 15-12-49 C of A lapsed on 22-4-50.

STATEMENT XXI

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Hind Provincial Flying Club during each of the five years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (iii) *Aircraft written off during the year,* (iv) *Aircraft at the end of the year.*

Year		L-5	Tiger moth	Pipers	Proctor	Argus	Bonanza	Auster	Silvaire	Expeditor	Total	L-5	Tiger	Chipmunk	Total
1947-48	Additions	9	...	11	...	2	...	...	...	...	22	2	...	...	2
	Written off	...	...	...	...	1	...	...	...	...	1	...	...	...	...
	Balance	9	...	11	...	1	...	...	...	...	21	2	...	...	2
1948-49	Additions	1	1	1	...	...	2	...	...	...	5	...	3	4	7
	Written off	...	...	...	...	1	...	...	...	...	1	...	...	1	1
	Balance	10	1	12	...	...	2	...	...	...	25	2	3	3	8
1949-50	Additions	9	...	...	1	...	1	...	3	2	16	...	...	...	...
	Written off	6	...	2	...	...	...	...	...	...	8	...	1	...	1
	Balance	13	1	10	1	...	3	...	3	2	33	2	2	3	7
1950-51	Additions	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Written off	...	...	1	...	...	...	...	...	...	—1	...	...	...	...
	Balance	13	1	9	1	...	3	...	3	2	32	2	2	3	7
1951-52	Additions	...	...	...	...	...	...	1	...	...	1	...	...	...	...
	Written off	...	...	1	...	...	...	...	...	...	1	...	1	...	1
	Balance	13	1	8	1	...	3	1	3	2	32	2	1	3	6

STATEMENT XXII

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Orissa Flying Club during each of the Five years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (iii) *Aircraft written off during the year,* (iv) *Aircraft at the end of the year.*

Club	Year		Club Owned								Government. Loaned			
			L-5	Tiger Moth	Pipers	Aero-nca	Argus	Bona-nza	Chip-munk	Total	L-5	Tiger	Chip-munk	Total
Orissa	1947-48	Additions	...	1	...	...	...	...	...	1	2	...	...	2
		Written off	...	...	...	...	...	...	...	...	...	...	...	...
		Balance	...	1	...	...	...	...	...	1	2	...	...	2
	1948-49	Additions	...	1	...	...	...	...	...	1	2	1	...	3
		Written off	...	...	...	...	...	...	...	...	...	...	...	...
		Balance	...	2	...	...	...	...	...	2	4	1	...	5
	1949-50	Additions	...	...	...	...	...	...	...	...	...	...	1	1
		Written off	...	...	...	.	...	...	...	...	3	...	..	3
		Balance	...	2	...	...	...	...	...	2	1	1	1	3
	1950-51	Additions	1	...	...	.	...	...	...	1	...	...	...	...
		Written off	...	...	...	...	...	...	...	...	...	...	...	...
		Balance	1	2	...	...	...	...	...	3	1	1	1	3
	1951-52	Additions	...	...	...	...	...	...	...	...	...	...	...	...
		Written off	...	...	...	...	...	...	...	...	1	...	...	1
		Balance	1	2	...	...	...	...	...	3	...	1	1	2

STATEMENT XXIII

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Northern India Flying Club during each of the four years ending the 31st March, 1952.

Club	Years		Club Owned									Government Loaned			
			L-5	Tiger Moth	Auster	Harvard	Pipers	Aeronca	Bonanza	Argus	Total	L-5	Tiger Moth	Chipmunk	Total
Northern India Flying Club.	1948-49 .	Additions . .	...	...	...	...	...	...	...	...	...	...	3	...	3
		Written off . .	...	...	...	...	...	...	...	...	...	...	...	...	...
		Balance . .	...	...	...	...	...	...	...	...	...	...	3	...	3
	1949-50 .	Additions . .	...	1	3	...	...	...	...	...	4	...	1	1	2
		Written off . .	...	...	...	...	...	...	...	...	...	...	1	...	1
		Balance . .	...	1	3	...	...	...	...	...	4	...	3	1	4
	1950-51 .	Additions . .	...	2	...	...	...	...	...	...	2	...	1	1	2
		Written off . .	...	...	...	...	...	...	...	...	...	...	1	...	1
		Balance . .	...	3	3	...	...	...	...	...	6	...	3	2	5
	1951-52 .	Additions . .	...	...	...	...	...	...	...	...	...	...	...	1	1
		Written off . .	...	...	...	...	...	...	...	...	...	...	...	1	1
		Balance . .	...	3	3	...	...	...	...	...	6	...	3	2	5

STATEMENT XXIV

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Madhya Pradesh Flying Club during each of the four years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (iii) *Aircraft written off during the year,* (iv) *Aircraft at the end of the year.*

Club	Year		Club Owned										Govt. Loaned			
			L-5	Tiger Moth	Aero-nca	Pipers	Argus	Bona-nza	Aust-er	Har-vard	Chip-munks	Total	L-5	Tiger Moth	Chip-munk	Total
	1948-49	Additions .	1	...	2	...	...	...	...	...	...	3	...	3	1	4
		Written off .	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Balance . .	1	...	2	...	...	...	...	...	...	3	...	3	1	4
	1949-50	Additions .	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Written off .	...	...	1	...	...	...	...	...	...	1	...	...	1	1
		Balance . .	1	...	1	...	...	...	...	...	...	2	...	3	...	3
	1950-51	Additions .	11	...	...	...	...	...	...	...	...	11	...	2	...	2
		Written off .	...	...	...	...	...	...	...	...	...	...	...	2	...	2
		Balance . .	12	...	1	...	...	...	...	...	...	13	...	3	...	3
	1951-52	Additions .	...	1	...	...	...	...	...	...	...	1	...	2	...	2
		Written off .	4	...	1	...	...	...	...	...	...	5	...	1	...	1
		Balance . .	8	1	...	...	...	...	...	...	...	9	...	4	...	4

STATEMENT XXV

Statement giving the following particulars in regard to the different types of aircraft owned by and loaned by the Government to the Government Flying Training School, Bangalore during each of the two years ending the 31st March, 1952.

(i) *Aircraft at the beginning of the year,* (ii) *Aircraft added during the year,* (iii) *Aircraft written off during the year,* (iv) *Aircraft at the end of the year.*

Club	Year		Club Owned						Government Loaned			
			L-5	Tiger Moth	Pipers	Aero-nca	Argus	Total	L-5	Tiger	Chip-munk	Total
Government Flying Training School, Bangalore.	1950-51	Additions . .	...	...	...	2	...	2	...	3	...	3
		Written off . .	...	...	...	...	...	...	...	...	...	...
		Balance . .	...	...	...	2	...	2	...	3	...	3
	1951-52	Additions .	...	...	...	...	...	...	...	...	...	...
		Written off . .	...	...	...	...	...	...	...	...	...	...
		Balance . .	...	...	...	2	...	2	...	3	...	3

STATEMENT XXVI

Statement giving the number of hours flown at each of the Flying Clubs in India and the total of A, A-1 and B licences issued to the trainees of each of these Flying Clubs during each of the six years ending the 31st March, 1952.

Clubs	Hours Flown	1946-47			Hours Flown	1947-48			Hours Flown	1948-49		
		A	A-1	B		A	A-1	B		A	A-1	B
Delhi	2492	23	...	3	2663	23	...	3	3091	12	3	7
Bombay	2132	16	3	...	5008	28	...	2	5485	32	...	4
Bengal	1444	16	...	...	1850	16	...	...	3455	25	3	4
Bihar	2020	21	4	1	3174	20	4	1	1836	1	2	1
Madras	2864	25	1	1	4553	45	7	3	4810	18	7	9
P. F. C.	...	...	...	...	4556	28	...	...	5909	27	3	4
Orissa	...	...	...	...	114	5	...	...	976	7	...	1
N. I. F. C.	...	...	...	...	...	...	...	...	511	7	...	1
Madhya Pradesh	...	...	...	...	...	...	...	...	109	...	...	...
Hyderabad State Aero Club	...	...	...	...	...	...	...	...	...	...	...	...
Government Flying Training School, Bangalore.	...	...	...	...	...	...	...	...	...	...	...	...
Total	10952	101	8	5	21928	165	11	9	26182	129	18	31

STATEMENT XXVI—*contd.*

Clubs	1949-50 Hours Flown	1949-50 A	1949-50 A-1	1949-50 B	1950-51 Hours Flown	1950-51 A	1950-51 A-1	1950-51 B	1951-52 Hours Flown	1951-52 A	1951-52 A-1	1951-52 B
Delhi	3056	19	1	4	2533	12	...	7	2804	11	...	5
Bombay	7688	32	...	14	6006	33	...	19	7001	36	...	23
Bengal	4636	21	...	8	3792	16	...	12	3620	17	...	6
Bihar	1972	19	...	5	1673	15	1	2	1309	11	...	1
Madras	3807	16	2	19	4993	29	...	10	3671	20	...	11
H. P. F. C.	7959	39	...	10	5982	28	...	6	5521	32	...	21
Orissa	1492	8	...	...	1137	11	...	3	744	10	...	...
N. I. F. C.	3188	26	...	1	3245	14	...	5	2421	20	...	5
Madhya Pradesh	1782	12	...	...	2222	11	1	2	1790	13	...	6
Hyderabad State Aero Club	...	...	...	...	3209	21	...	2	551*	8	...	6
Government Flying Training School, Bangalore.	...	...	...	...	1072	6	...	...	1205	5	...	...
Total	35580	192	3	61	35864	196	2	68	30637	183	...	84

*Suspended operations with effect from 1-10-1951.

STATEMENT XXVII

Statement giving the particulars of the different types of aircraft owned by and loaned to each of the Flying Clubs in India as on 31st March 1952.

Club	Tiger Moth		L—5			Chipmunk	Pipers		Aeronoca	Bonanza	Argus	Silvaire	Expeditor	Auster	Proctor	Aero 45	Total			
	Owned	Loaned	Owned		Loaned	Loaned	Owned		Owned	Owned	Owned	Owned	Owned	Owned	Owned	Owned	Owned		Loaned	
	S	S	S	Us	S	S	S	Us	S	S	S	S	S	S	S	S	S	Us	S	Us
Bombay	4	...	...	...	...	2	7	...	...	1	1	...	...	...	...	...	13	...	2	...
Bengal	2	3	2	...	1	2	...	...	...	...	...	...	...	...	...	...	4	...	6	...
Delhi	2	4	2	...	...	1	...	...	...	...	...	...	...	...	...	...	4	...	5	...
Madras	3	...	...	11	1	3	...	...	1	...	...	...	...	1	...	...	5	12	4	...
Bihar	...	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	4	...
Hind Provl	1	1	13	...	2	3	8	...	...	3	...	3	2	...	1	1	32	...	6	...
Orissa	2	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	3	...	2	...
Northern India	3	3	3	...	...	2	...	...	...	...	...	...	...	...	...	...	6	...	5	...
Madhya Pradesh	1	4	4	4	...	...	...	...	...	...	...	...	...	...	...	...	5	4	4	...
G. F. T. S. Bangalore	...	3	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	3	...
Total	18	21	25	15	5	15	15	2	1	4	1	3	2	1	1	1	73	16	41	...

SUMMARY

Type of aircraft	Owned			Loaned			Owned and Loaned		
	S.	Us.	Total	S.	Us.	Total	S.	Us.	Total
Tiger Moth	18	...	18	21	...	21	40	...	40
L-5	25	15	40	5	...	5	30	15	45
Chipmunk	...	...	...	15	...	15	15	...	15
Pipers	15	...	15	...	...	...	15	...	15
Others	15	1	16	...	...	...	15	1	16
Total	73	16	89	41	...	41	114	16	130

STATEMENT No. XXVIII

Statement indicating the places from where the trainees for 'A' licences of each of the Flying Clubs were trained for each of the three years ending the 31st March, 1952

(*i*) *Trainees normally residing in the city,* (*ii*) *Trainees coming from outside the city,* (*iii*) *Trainees who come from outside the State.*

Name of the Flying Club	Members who normally reside in the city				Members outside the city				Members from outside the state			
	1949-50	1950-51	1951-52	Under training	1949-50	1950-51	1951-52	Under training	1949-50	1950-51	1951-52	Under training
Madhya Pradesh Flying Club .	10	6	6	3	...	...	6	2	3	1	...	...
Bihar Flying Club . . .	5	2	2	1	26	13	10	12	14	6	1	1
Training School, Bangalore .	11	3	10	2	2	...	8	3	4	8	12	10
Bengal Flying Club . . .	23	16	18	20	...	...	...	6	...	...	...	...
Northern Indian Flying Club .	5	3	5	3	9	4	8	3	10	6	5	4
Delhi Flying Club . . .	10	4	3	1	...	...	...	...	9	7	7	3
Bombay Flying Club . . .	27	33	37	22	...	3	6	...	...	...	...	2
Orissa Flying Club . . .	...	...	...	...	4	4	5	...	4	5	5	...
Madras Flying Club . . .	22	18	4	...	25	28	21	11	2	19	25	5
Hind Provl. Flying Club 3 . .	18	18	15	19	6	9	8	22	11	7	9	9
	131	103	100	71	72	61	72	59	57	59	64	34

STATEMENT No. XXXIX

Statement indicating the places from where the trainees for 'B' licences of each of the Flying Clubs were trained for each of the three years ending the 31st March, 1952

(i) Trainees normally residing in the city, (ii) Trainees coming from outside the city, (iii) Trainees who come from outside the State

Name of the Flying Club	Members who normally reside in the city.				Members outside the city				Members from outside the State			
	1949-50	1950-51	1951-52	Under training	1949-50	1950-51	1951-52	Under training	1949-50	1950-51	1951-52	Under training
Madhya Pradesh Flying Club	1	1	4	5	...	...	1	2	1	1	3	...
Bihar Flying Club	3	1	1	...	...	4	5	5	8	3	...	...
Govt. Technical Schcol, Bangalore	1	4	5	1	...	...	...	...	4	3	2	2
Bengal Flying Club	9	17	8	26	...	1	...	...	...	3	...	...
Northern India Flying Club	...	...	1	6	1	3	1	4	...	...	3	3
Delhi Flying Club	2	3	...	4	...	...	...	...	2	3	2	6
Bombay Flying Club	13	19	17	17	...	...	...	...	...	...	...	...
Orissa Flying Club	...	...	...	...	...	2	...	...	2	1	1	...
Madras Flying Club	22	18	12	7	27	24	23	12	7	16	14	6
Hind Flying Club	5	5	8	4	...	...	7	1	5	2	5	2
	56	68	56	70	28	34	37	24	29	32	30	19

STATEMENT No. XXX

Statement giving the number of Instructors employed by the Flying Clubs and the C. A. T. C. Allahabad with the particulars of their nationality and the places where they were trained as on the 30th June, 1952

Club	No. of Pilots			Nationality		Where trained				
						Indians			Foreigners	
	Chief Instructor	Pilot Instructor	Asstt. P. Is.	Indians	Foreigners	Flying Clubs	R.A.F. I.A.F.	Abroad	In India	Abroad
Delhi	1	1	1	3	...	2	1	...	...	...
Bombay	1	1	1	3	...	2	1	...	...	...
Bengal	1	2	...	3	...	3	...	...	...	...
Bihar	1	1	...	2	...	2	...	...	...	...
Orissa	1	...	...	1	...	1	...	...	...	...
Hind Provincial . . .	3	3	1	7	...	5	1	1	...	...
Northern India . . .	1	1	...	1	1	1	...	...	1	1
Madhya Pradesh . . .	1	...	1	2	...	1	...	1	...	...
Madras	1	1	...	2	...	2	...	...	...	...
G. F. T. S. Bangalore . .	1	1	...	2	...	2	...	...	...	...
C. A. T. C.	2	...	...	2	...	2	...	...	...	...
TOTAL . .	14	11	4	28	1	23	3	2	1	1

STATEMENT No. XXXI

Statement giving the number of trainees for 'A' and the trainees for 'B' licences at the Flying Clubs of India as on 30th June, 1952

Club	'A'	'B'
Bihar	10	7
Orissa	2	4
Bengal	32	29
G. F. T. S. Bangalore	12	3
Bombay	22	23
Northern India	21	17
Madras	12	38
Madhya Pradesh	5	14
Delhi	8	13
Hind Provincial Flying Club	*34	*23
	158	171
*Kanpur	21	3
Lucknow	6	6
Allahabad	7	14
	34	23

सत्यमेव जयते

STATEMENT No. XXXII

Statement giving the particulars of the starting salary and the total salary drawn by the Instructors, Engineers and Secretaries of each of the Flying Clubs in India as on 30th June, 1952

Post	Bombay	Madhya Pradesh	Delhi	Madras	Bengal	N. India	H.P.F.C.	Bihar	Bangalore
Chief Pilot Instructor									
Date of Joining	1-8-49	1-6-49	1-12-33	6-9-44	1-1-49	1-10-48	(1) 9-1-49 (2) 3-1-50	9-2-48	1-8-50
Total Starting Pay	830	1,500	815	450	400	1,100	(1) 2,500 (2) 1,600	1,650	1,100
Total Present Pay	1,643	1,500	1,925	1,081	1,200	1,600	(1) 2,100 (2) 1,600	1,700	1,300
Senior Pilot Instructor									
Date of Joining	1-5-49	..	1-7-46	..	1-5-49	15-7-49	19-4-49	22-8-51	..
Total Starting Pay	830	..	675	..	425	1,100	400	900	..
Total Present Pay	1,149	..	1,347/8	..	1,000	1,250	800	900	..
Pilot Instructor									
Date of Joining	8-11-50	..	..	..	1-6-51	..	10-11-49	..	..
Total Starting Pay	..	..	..	..	490	..	400	..	..
Total Present Pay	965	..	..	..	750	..	600	..	..

Post	Bombay	Madhya Pradesh	Delhi	Madras	Bengal	N. India	H.P.F.C.	Bihar	Bangalore
Asstt. Pilot Instructor									
Date of Joining	..	11-12-49	15-10-50	..	..	..	1-10-50	27-11-51	22-11-50
Total Starting Pay	..	600	400	..	..	..	430	400	300
Total Present Pay	..	500	400	..	..	..	460	400	590
Asstt. Pilot Instructor									
Date of Joining	..	..	..	21-11-49	..	..	..	6-10-51	..
Total Starting Pay	..	..	..	470	..	..	..	400	..
Total Present Pay	..	..	..	600	..	..	..	400	..
Chief G. E.									
Date of Joining	15-3-49	15-1-49	1-4-46	22-11-48	10-6-46	5-12-51	(*i*) 15-11-46 (*ii*) 23-9-47	6-10-51 4-11-51	..
Total Starting Pay	1,750	1,500	675	1,175	550	100	(*i*) 1,100 (*ii*) 1,100	1,750	900
Total Present Pay	1,750	1,500	1,347/8	1,244	1,525	1,000	(*i*) 1,250 (*ii*) 1,100	1,750	900
Ground Engineer									
Date of Joining	2-3-38	20-7-49	1-10-46	10-1-49	10-12-47	3-2-49	12-7-49	19-10-48	11-7-52
Total Starting Pay	3,00	400	510	646	600	300	900	900	480
Total Present Pay	700	450	803	706/8	1,025	425	900	1,100	480

Ground Engineer									
Date of Joining	1-11-46	20-7-49	...	4-3-49	1-7-51	...	19-5-47	1-6-52	...
Total Starting Pay	420	400	...	247	400	...	750	350	...
Total Present Pay	780	450	...	571/8	440	...	750	350	...
Ground Engineer									
Date of Joining	2-6-50	...	...	...	...	...	1-12-49	...	...
Total Starting Pay	420	...	...	...	...	...	500	...	...
Total Present Pay	480	...	...	...	...	...	600	..	...
Ground Engineer									
Date of Joining	10-1-51	...	...	...	...	...	28-9-47	...	...
Total Starting Pay	160	...	...	...	...	...	200	...	...
Total Present Pay	408	...	...	...	...	...	230	...	...
Secretary									
Date of Joining	1-3-49	...	1-10-46	5-5-47	...	...	...	1-10-51	26-4-51
Total Starting Pay	600	...	500	500	...	...	...	400	237/8
Total Present Pay	1,010	...	737	661/8	...	...	...	400	250
Ground Tech. Inst.									
Date of Joining	1-4-52	...	...	...	...	...	...	...	...
Total Starting Pay	360	...	...	...	...	...	...	...	...
Total Present Pay	360	...	...	...	...	...	...	...	...

STATEMENT XXXIII

Statement giving the number of Commanders and copilots employed by the Scheduled and Non-Scheduled airlines of India as on the 30th June, 1952, together with particulars of their nationality and the places where they were trained

S. No.	Name of the Company	Number of Pilots			Nationality		Where trained					
							Indians				Foreigners	
		Com-manders	Co-Pilots	Total	Indian	Foreign-ners	Flying Clubs	CATC	RAF or IAF	Abroad	In India	Abroad
1	Air India International	11	12	23	22	1	7	...	12	3	...	1
2	Air India Ltd.	34	27	61	59	2	29	4	31	5	...	2
3	Airways (India) Ltd.	28	32	60	55	5	32	5	9	9	...	5
4	Indian National Airways	13	16	29	28	1	19	...	8	1	...	1
5	Air Services of India	8	6	14	11	3	7	...	4	...	...	3
6	Bharat Airways Ltd.	22	16	38	35	3	18	9	8	...	...	3
7	Deccan Airways Ltd.	31	15	46	44	2	21	3	15	5	...	2
8	Himalayan Aviation Ltd.	6	9	15	11	4	6	3	2	...	...	4
9	Jamair Co., Limited	8	7	15	9	6	7	...	1	1	...	6
10	Darbhanga Aviation	2	3	5	4	1	4	...	...	...	...	1
11	Air Survey Co. of India, Ltd.	2	...	2	...	2	...	...	...	...	...	2
12	Nalanda Airways	2	...	2	2	...	2	...	...	...	...	...
13	Kalinga Airlines	5	6	11	9	2	6	...	3	...	...	2
14	Indamar Co. Limited	4	1	5	2	3	1	...	1	...	...	3
15	Air Lift Co-operative Services Limited	4	...	4	4	...	4	...	...	...	...	...
	Total	180	150	330	295	35	163	24	84	24	...	3

PART III

Observations of Shri T. P. Bhalla, on the terms of reference of the Committee on the Training of Civil Air Pilots

सत्यमेव जयते

No. 1. G/M/53.

FROM

Shri T. P. Bhalla, I.P.,
Member of the Committee on Training of Civil Air Pilots, and
Inspector General of Police,
Uttar Pradesh.

To

Shri K. V. Venkatachalam,
Deputy Secretary to the Govt. of India,
Ministry of Communications,
New Delhi.

Dated Lucknow, the 2nd April, 1953.

SIR,

As desired in your letter No. D.S. 31/53, dated January 28, 1953, I give my observations on the terms of reference of the Committee on Training of Civil Air Pilots in my capacity as its Member.

2. I regret owing to circumstances beyond my control I could not attend the last meeting of the Committee. I had, however, nominated Shri D. Chakravarti to represent my views and I also had during previous discussions as well as in letters to the Chairman explained them.

3. I now record my observations and for facility of reference follow the order of the Report signed by my colleagues.

CHAPTER I

4. *Paragraph* 12.—I consider it fair to mention that the Ministry had informed the Committee that as D.G.C.A. was himself a Member of the Committee, it would be inappropriate for him to appear as a witness but he would be available to the Members to explain the Departmental point of view. Besides, Shri Subramaniam, the Deputy Director of Training and Licensing, who had drafted and submitted the Memorandum to the Committee on behalf of the D.G.C.A., was Secretary/Member of the Committee and was available exclusively to the Committee for a period of nine months to explain any points as the Committee wished.

CHAPTER II

5. *Paras.* 1 *to* 57 (*History of Flying Clubs*).—To complete the historical picture I would like to mention that the RAF were not prepared to train Indians in flying and as there was no Civil Aviation Department in 1926, the Indian Members of the Assembly had no alternative but to ask for establishment of flying clubs on the analogy of the U.K. notwithstanding that conditions in India were materially different. The proposal was welcome to the European Members also, as in the flying clubs they could have facilities and subsidised training at the expense of the Indian Exchequer, which would not have been permissible in a Government run institution subject to the scrutiny of the Legislature. It is noteworthy that during the period 1928—39 of the

1057 "A" licences issued, Indians numbered 563 of whom only 472 had been trained in the flying clubs. Of the 252 "B" licences issued, the number of Indians including those trained abroad was only 93, *i.e.* 37%. Pre-war thus the flying clubs subsidised in the main by the Indian tax-payer had trained more foreigners than Indians. During World War II (1939—45) the flying clubs were given the job of training but gradually the Air Force took over that work, thereby demonstrating that the flying clubs were not the best instruments for training during War. In the U.K. too after the World War II Government stopped paying subsidy to the flying clubs on the ground that they had little defence value. I should not be misunderstood of being unsympathetic to the flying clubs in having brought these facts out but I feel their consideration along with other facts is essential to have a complete picture.

6. *Para.* 59.—As more than 66% of the total flying was on account of "B" licensees (the percentage would be still higher if the flying for "A" licence of those who subsequently took "B" licence were also added), it is evident that in spite of their existence for the last 24 years the flying clubs have failed to popularise amateur flying. The purse of an average Indian is too lean to afford the cost.

7. *Paras.* 63-64.—The Air Ministry sends cadets of its Air Training Corps to the flying clubs in the interest of economy, as the cost of £3 per hour in the flying clubs is lower than the cost in the RAF training institutions. This action of the Air Ministry does not fall in the category of subsidy but of enlightened self-interest in which both parties benefit.

8. *Para.* 65.—Flying on account of State work is comparatively little and it should not detract from the generosity of the State grants; neither it is an insuperable obstacle in working out the cost of flying per hour, as the cost of flying per hour does not vary with the purpose of flying but depends upon the kind of aircraft used and, when different aircraft are used, equation of their cost with that of the Tiger Moth or Chipmunk on the principle of conversion, so many Tiger Moth hours being equivalent to so many Dakota or Expeditor hours.

9. *Para.* 66.—On a subsidy of Rs. 1·19 lakhs in 1934-35 the flying clubs flew 11,780 hours. On a subsidy of over Rs. 12 lakhs in 1950-51, the hours flown were 35,000, *i.e.*, an increase of a little less than three times in the hours of flying as against an increase in the subsidy of more than ten times.

10. *Para.* 68.—From 1946-47 to 1951-52 direct cash subsidy given by Government came to Rs. 57 lakhs. Indirect subsidy was given in the loan of 43 aircraft to the clubs, buildings on nominal or free rental, free hangarage, free landing and rebate on petrol. These indirect aids should approximately amount to another Rs. 15 lakhs, making a total of Rs. 72 lakhs. It is for consideration whether the turnout of the clubs during these 5 years has been commensurate with this heavy public expenditure.

11. *Para.* 69.—The D.G.C.A. authority was subject to Government control and as it was Government policy to promote non-official management of the clubs, the theoretical power of the D.G.C.A. was limited to suggestion and persuation. As happened in the case of the Bombay Flying Clubs, Government interference was in the very last

resort and even so, was as gentle as it could be. The two nominees of the D.G.C.A. in a committee of 9 to 11 members could not have an effective voice nor the technical approval of the appointment of the Chief Pilot Instructor and Chief Ground Engineer gave an effective control over the emoluments and duties of the staff. The clubs did not have to submit to D.G.C.A. items of expenditure for sanction nor did they have to receive his sanction in regard to the number of pilots they were to train, though the D.G.C.A. under the agreement had authority to limit the number. In the matter of insurance, the D.G.C.A. approved a panel of names of insurance companies but he did not prescribe insurance with any particular company. The clubs were registered limited concerns under the Company Law and their day-to-day administration could not be interfered with, the only remedy vested in the Government to terminate the agreement being too drastic for normal use. When persuation, conferences and meetings as well as personal discussions failed to prevent waste in the clubs and improve the management to produce efficient and an appropriate number of pilots, the D.G.C.A. reported to Government and the latter appointed a committee to examine the whole matter. The point, therefore, that the D.G.C.A. was a consenting party to the defects of the clubs is incorrect.

12. *Para.* 70.—In 1950-51 508 hours were flown on account of the State in the H.P.F.C., 33 hours in the Bihar Flying Club, 76 hours in the Northern India Flying Club and 36 hours in the Madhya Pradesh Flying Club. These figures do not support the plea that State work ate deeply into the State subsidies to the clubs. All honour to the States for their generous help to the flying clubs.

13. *Paras.* 72—74. (*Cost of Flying*).—There is no common ground between the C.A.T.C. and the flying clubs for comparison of costs of flying, as the C.A.T.C. admittedly gave thorough ground training and also flying on twin-engined Ansons and Dakotas in addition to Chipmunks. The clubs flew Pipers, Tigers, L.5s and a few Chipmunks. Besides, the C.A.T.C. had the disadvantage of the teething troubles of its infancy while the clubs were grown-ups with 24 years of experience and, therefore, they could definitely estimate on the basis of their experience the number and the type of aircraft required to meet their likely demand for training. If the clubs did not benefit from their experience and procured excessive number of aircraft, they must take the responsibility for it.

The fact that the clubs flew and maintained State-owned aircraft did not present any insuperable difficulty in working out costs. In fact, the Committee had asked for details to work them out but some of the clubs refused to supply the data which fact itself is suggestive, as according to the well-established judicial principle, evidence withheld has to be presumed to be against the party withholding it. Besides, the number of hours flown by each aircraft in the clubs were known and the cost of flying could be found by equating the cost of flying of the different types of aircraft, as suggested in my comment on paragraph 74 above. Except for the H.P.F.C., which had about four aircraft belonging to the State (only one or two normally being serviceable) the other clubs did not have more than 2 or at the outside 3 aircraft. Their cost could easily be determined, as the Committee has tried to determine the cost of flying of the various types of aircraft at the C.A.T.C. The number of hours flown on behalf of the State, as previously shown, was not large at all and would not materially affect the flying cost. The costs of flying of the various flying clubs were available to the Committee and they clearly indicated that the non-subsidised Bengal Flying Club had the cheapest cost and the highest subsidised the H.P.F.C. the highest cost.

The cost at Rs. 52,000 on training of a pilot at the CATC includes insurance and depreciation on high priced Dakotas, Ansons and Chipmunks as compared with the lower depreciation and insurance on cheaper Piper Cubs, Tiger Moths and L5s, which were the major aircraft of the clubs. The Committee has also over-loaded the flying side without assigning adequate proportionate expenditure to other three Branches of training at the CATC, namely, communications, engineering and air traffic control.

The Committee itself has come to the conclusion that the standard cost of flying should now be Rs. 80 per hour. The inference, therefore, follows that the costs above that figure on 3,500 hours of flying are excessive and in the clubs like the H.P.F.C. and the Bombay Flying Club, which flew about 7,000 hours each per annum, the cost should have been still less. The data, therefore, exist to come to the conclusion in regard to the cost of flying in the clubs. If the clubs had more aircraft and more staff, as they had even according to the standard adopted by the Committee, the inference is irresistable that the clubs were extravagant.

14. *Para.* 76.—Mr. Vandiver, the ICAO Flying Training Expert, had given very high praise to the training given at the CATC when he appeared before the Committee at Allahabad and I consider it only fair to mention this fact. The Committee has recognised that there was better ground training at the CATC and that twin-engined training was also given there, both of which were non-existent in the clubs. Even mathematicaly speaking, therefore, the equation of the flying training at the CATC with that of the flying clubs seems incorrect.

15. *Para.* 77.—Till suitable facilities are developed at the CATC, the Instructors may go to Ambala. There is a vital difference in the aim of training at the Air Force and Civil Aviation. In the former, the principle is target first and safety afterwards and in the latter it is safety first and target afterwards.

16. *Para.* 78.—The Government-loaned aircraft were essentially trainer aircraft while the flying clubs had other aircraft more suitable for joy-rides. The non-use, therefore, of Government aircraft did not stand in the way of joy-rides nor the small fee of Re. 1, which the clubs had to pay for such landings. The Indian National Airways tried the experiment of joy-rides with their Dakotas at no less a place than Delhi and even so, the response was so poor. The fact is that people normally have not the money to afford the joy-rides and do the journey from the city to the airport outside the city, in some places some miles distant, and come back.

17. *Para.* 79.—In my opinion, the cost of hangaring at Rs. 80 per quarter is no more than the rent of a car garage and the fee of Re. 1

per landing is extremely small and cannot be a deterrent to private flying. Those, who can afford to buy an aircraft, can also afford to pay these nominal fees. In U.K. and other countries, higher charges have to be paid. Similarly, a private flier must comply with all safety directives and must bear their cost, as is shown in other countries. The private flier will have to pay much more and with his dear life, if D.G.C.A. would not strictly enforce safety conditions.

18. *Para.* 80.—The obligation of serving is not novel and peculiar to this country and exists in other countries also where subsidies are paid. In actual practice, the obligation has rarely been enforced but its existence safeguards the country from its pilots going abroad and serving in other countries to the detriment of Aviation in India.

19. *Para.* 81.—There is no objection to social and flying activities both being kept in the club but Government subsidy should not be used for social activities.

20. *Para.* 83.—With their 24 years of experience, the clubs certainly, like other institutions, have the capacity to estimate the number of trainees and the number of aircraft required for training.

21. *Para.* 84.—There are definite standards of wages mentioned in the Pay Commission's Report and prevailing in the Indian Air Force as well as the Civil Aviation Department which give guidance in regard to reasonable scales of salary that should prevail in the clubs.

22. *Para.* 85.—The existing rules have not prevented distinguished persons from accepting positions as patrons, Presidents and Vice-presidents of the flying clubs and Members of their Committee. The contention, therefore, that the existing rules stand in the way of public men from taking responsibility in the clubs is incorrect. As the clubs depend upon public funds, the inevitability of public control follows in regard to the expenditure and the plea that the Committee should be left to dispose of the money as it likes seeks for authority, which has not been granted to the highest in the land. The analogy of the flying clubs and the Royal Aero Club working as a co-ordinating club does not apply, as no subsidy is paid by Government to these institutions there. It is not correct that D.G.C.A. as a single indivi-dual has extensive powers. These powers are subject to scrutiny by a number of officials in the Secretariat and also by the Minister and the Deputy Minister apart from the DGCA's own Directorate which scrutinise all matters in the first instance. Besides, there is the Parliament in which the exercise of the authority can be questioned.

23. *Paras.* 86 *to* 88.—The point for consideration is whether the turn-out of the clubs was commensurate with the very heavy expenditure incurred on them. During the last 5 years if State subsidies and the fees received from the trainees were added to Central Government grants the total would be nearly Rs. 1¼ crore and it is for consideration whether the output of the clubs is worth that amount of money. The problem, therefore, is to get the best out of the public money and if the clubs can give that best or even approximately best, their future should certainly be assured. So far, unfortunately the performance of the clubs is not in accordance with this criterion.

CHAPTER III.

Flying Training Centre.

24. *Para.* 97. The main reasons why the number of B licences intended to be trained was not attained were—

(1) Strict selection for admission to the CATC, both for admission and during training, leading to rejection of a very large number of candidates, and

(2) competition of the flying clubs where every one was admitted and every one got "B" licence as against the strict selection at the CATC and no less strict examination resulting in failures.

In spite of unemployment the number of pilots undergoing training at their expense in the clubs is not less than 60.

25. *Para.* 98.—The estimate was based on the calculation that training for "B" licence will be concentrated at the CATC and the clubs will be asked to concentrate on "A" licence. The number of trainees for "B" licence in the clubs was more than twice the estimate for admission in CATC.

26. *Paras.* 100—102.—In view of the admittedly better ground training and experience on twin-engined aircraft given at the CATC as well as more methodical system of training, the school authorities recommended and the Training Branch accepted, without reference to the DGCA, the lesser number of hours of flying. They thought that under Rule 41(3) (c) of the Indian Aircraft Rules, the Training Branch had the authority to do it. In the ICAO rules also there is provision for a lesser number of solo flying hours at approved institutions as against others. The CATC definitely would come in that category.

27. *Para.* 103.—Raja Saheb Bhadri's complaint before the Committee is strange, as he was the loudest in opposing the reform for all flying training of B licensees at the CATC being given there instead of the flying clubs. As regards the difference in cost of training at the flying clubs and the CATC, the point is to be noticed that the number of admissions to the CATC unlike the flying clubs was limited and the very best students were selected out of those who applied, including those who were under training in the flying clubs. The field was open to every one upto the limited number. The fact that inspite of the lower cost and better training, a larger number still preferred to stay in the flying clubs is significant. The reason was that the flying clubs admitted every one and passed almost every one as against the CATC. In other institutions also as a result of open competition, certain concessions are given and, therefore, the fee fixed by Government for the CATC was not discriminatory against the clubs, as it was available equally to the members and trainees in the clubs as to anybody who qualified in the selection. The Committee itself has subsequently recommended that except for the limited number to be trained at the CATC, others receiving training for "B" licence in the clubs should pay full cost *vide* para. 195 of the Report.

28. *Para.* 104. According to Mr. Vandiver, the ICAO training expert of international repute, the CATC training in flying was very good. The fact that as against the clubs the CATC gave training on

twin-engined Ansons and Dakotas would also indicate the better quality of training at the CATC *vis-a-vis* the clubs where training only on single engined aircraft was given.

29. *Para.* 105.—Amenities to the trainees in the matter of accommodation and mess life have to be improved and every one at the CATC must be compelled to join the mess.

30. *Paras.* 106 *and* 107.—The airlines did not possess equipment nor spared the cost of training and economised by not following the prescribed tests, as will be evident from the report of Shri G. C. Arya, Chief Inspector of Flying, submitted to Government. Shri Arya had also informed the Committee. The point that pilot were responsible for accidents and, therefore, there was no necessity for any change in the training of co-pilots misses the fact that co-pilot training is the *sine-qua non* for a pilot. Indeed, the High Court Judge who presided over the Pathankot Accident Inquiry Committee, had stressed the necessity of pilot training and control, finding the existing system unsatisfactory. In other accident, inquiries due to pilot error, similar inferences arose.

31. *Paras.* 108 *and* 109.—My colleagues have missed that the procedure of training in two stages helped the pilots to continue their jobs with the airlines after a short spell, earn their livelihood and then complete their training. After the preliminary instruction of 5 hours of flying and link training each, the pilot was enabled to continue as a co-pilot and it was easier for him after his practical experience of six months to complete the rest of the training and get a permanent endorsement. The point, however, to note is that without the permanent endorsement, he could after the temporary endorsement continue as a co-pilot and there was no actual hindrance in the way of earning his livelihood.

32. *Para.* 110.—The trainees of the clubs were equally eligible to compete for training at the CATC and get the benefit of open competition. The concession was naturally limited to the best talent. The trainees in the clubs were indiscriminately admitted and passed cent percent. Such material was unfit for further expenditure by the State and my colleagues have noted subsequently that "B" licence trainees at the clubs should have to bear the entire cost of training without any element of subsidy by Government.

33. *Para.* 111.—The two different courses were intended for two different sets of trainees—

(1) who had received employment in an airline, and
(2) who was without such employment.

It would have dislocated the work of the airline if their employees were all pulled out to do the one long course and, therefore. the course was split up into two to accommodate both the airline and the employee. In the case of (2) no such considerations obtained and, therefore, he could easily do the whole course of training in flying of 15 hours on Dakotas. For practical experience of 500 hours he had to go to an airline. During this course of 500 hours of practical experience, the pilot had to undergo his six monthly checks and if he passed them successfully, there was no necessity for any additional separate checks and that is why they were not insisted on. There seems no illegality in insisting upon practical experience of flying of over 500 hours and intensive training for 15 hours and to give a permanent endorsement only when both were completed. I do not quite understand how the airline co-pilot would have to spend a larger amount of money than a fresh licensee from the club. In fact, the airline pilot during all this period would have been earning and was, therefore, in a better position than the unemployed pilot.

34. *Para.* 112.—It is not practicable to extend training facilities to all irrespective of their deserts. All holders of "B" licence are not fit for conversion courses and they can have no reason for grievance, as they did not get the benefit of the CATC training course because of their own failure to qualify for admission to the CATC.

35. *Paras.* 114 *and* 115.—For purposes of comparison, all the figures should have been on the same basis, that is, inclusive or exclusive of depreciation and insurance. The low figure of Rs. 17,500, which is exclusive of depreciation and insurance is compared subsequently with Rs. 27,600 inclusive of depreciation but exclusive of insurance and then again in paragraph 115 it is compared with Rs. 52,948, which includes both depreciation and insurance. According to the calculations of the Committee, the cost of insurance would be Rs. 1,49,830, the cost of depreciation on aircraft Rs. 321,817 and another Rs. 44,000 for stores *vide* paras. 116 and 117, making a grand total of Rs. 5,15,647. In 1951-52 thirteen trainees were turned out and so the cost of depreciation and insurance per trainee comes to Rs. 39,665. If this sum is deducted from Rs. 52,948 which the Committee has accepted as the cost of training, the cost exclusive of depreciation and insurance comes to Rs. 13,283, which is even lower than the figure of Rs. 17,500 reported to Government by the DGCA in January 1951 on the basis of cost of a much larger number of pilots, namely, 40. The DGCA's report of cost, therefore, was not, as implied by the Committee, any under-estimate.

सत्यमेव जयते

36. *Para.* 116.—As Government do not insure, the cost of insurance was not included, as it is not in the budget or cost of the CATC. Inclusion, therefore, of insurance would be fictitious as far as Government accounts go. The rate of premium at 12½% calculated is also excessive and unnecessarily loads the cost of training at the CATC.

37. *Paras.* 117 *and* 118.—In the CATC accounts and in Government budget no provision is made for depreciation and, therefore it was rightly excluded from the calculation of cost of training at the CATC. In respect of Government loaned aircraft the clubs have neither to calculate depreciation.

The justification for loading the entire amount of depreciation on the flying side, though all the other three sides also under the scheme envisaged took advantage of flying, is evidently unfair. The whole idea of bringing the four branches together at Allahabad was to afford each others' facility to the trainee of each branch so that after training he may turn out a specialist in his particular branch with knowledge of the allied three branches. As such it is legitimate that the cost should be distributed in regard to facilities utilised proportionately to all the four branches. The proportion in which the various branches were to bear the cost was calculated by the DGCA on the basis of the composite training, as desired, and not what was achieved in 1950 or 1951 when the school was still in the period of its teething troubles.

38. *Para.* 118.—As Ansons were equally new as Chipmunks, a period of 5 years allotted to them for depreciation is not understood. Similarly, the four years life given to Dakota in spite of the limited number of hours flown by the aircraft during the year seems again excessive for depreciation.

39. *Para.* 120.—A different standard here has been set in accepting the fees received from the trainee, as representing the cost of his training. On that argument the cost of flying training should be only Rs. 4,500. In actual practice, the fees were highly concessional.

40. *Para.* 121.—The acceptance of the supposed figure of Rs. 80,000, which was the cost of the purchase of the spares as distinguished from the much lesser amount representing the cost of spares used, increased the cost of training in flying by a few thousand rupees per trainee.

41. *Para.* 125.—As the number of flying trainees was very much less than the 25% of the total strength of the school, it is unfair to burden the flying school with 25% of the cost of general administration.

42. *Para.* 126.—The costs under head I in regard to Technical Staff, under head II in regard to Spares, and under head IV in regard to general administration are excessive, as pointed out in the preceding paras. Costs under heads V and VI were not actually incurred and are not shown in the budget.

43. *Para.* 127.—This conversion of equivalent hours is again fictitious, as it does not take into account the heavy expenditure on depreciation, insurance and maintenance of Dakotas and Ansons, which will increase the ratio *vis-a-vis* the Chipmunks very considerably over what the Committee has taken into consideration. The calculation, therefore, made in the paragraph is inaccurate and unrealistic in the sense that the cost on depreciation and insurance was not actually incurred and that there is overloading of expenditure on the flying side, as indicated previously.

CHAPTER IV

Legislation pertaining in the Licensings of Private and Commercial Pilots

44. *Paras.* 129 *to* 150.—I have no comments to make, as the recommendations are based on ICAO, Rules.

45. *Para.* 151.—The directive was issued as a result of the recommendation of the Inquiry Committee appointed by Government to investigate the Deccan Airways Dakota accident at Nagpur. On the representation of Air-India a concession was granted to accommodate the airline. There was nothing illegal in the directive issued in accordance with the recommendation of the Court of Inquiry, as safety measures can prudently be in excess of the minimum laid down. The suggestion that no safety measures beyond those prescribed by law should be proposed is retrograde.

46. *Paras.* 152 *to* 154.—In view of the accidents it was found that the check pilots of the airlines approved by the DGCA because of familiarity with their men as well as the pressure of the airline on economy grounds did not carry out the prescribed procedures and, therefore, in accordance with the recommendation of the Pathankot Accident Court of Inquiry presided over by a High Court Judge, a Government Check Pilot was appointed and more were to be appointed. The first directive, therefore, enjoined that the Pilot-in-command checks will be done by the Government Check Pilot, on the representation of the airlines, in order to accommodate them during the period of transition and till the necessary number of Government Check Pilots were appointed, a concession was given that the Government Check Pilot would test within two months and meanwhile the pilot could carry on after certification of fitness by the airline check pilot approved by the DGCA. It was felt that the airline check pilots would be careful knowing that a subsequent test will be made by a Government. Check Pilot and failure would cast reflection on them. Subsequently on further representation and in view of the delay in the appointment of check pilots, a further concession was given that the pilot-in-command certificate could be held permanently subject to cancellation in case on subsequent test by the DGCA check pilot, the pilot concerned was found inefficient. This fear, it was felt, would ensure both in the pilot as well as the check pilots of the airline proper care before they certified regarding fitness for pilot-in-command. The certificates were, issued by the DGCA and he is entitled to cancel the certificate in case he found that the holder was inefficient or had become inefficient. This power is exercised both in the U.S.A. and U.K. and the rules 19 and 43 of the Indian Aircraft Rules mentioned by my colleagues in paragraph 154 do not deprive the DGCA of his inherent authority.

CHAPTER V

Operational Efficiency

47. *Para.* 159.—It will not be in the interest of safety to delete paras. 5 and 6 of Section "C" of Schedule VIII of Chapter II of the existing rules. The quarterly check laid down should be done by Government check pilots as an independent testing agency.

48. *Para.* 160.—The renewal of the commercial Licence every six months gives opportunity for a test, besides the necessity of keeping instrument rating current. The latter are even more important. The U.K. rules do not prohibit the Ministry of Civil Aviation from making any tests of any pilots, who hold a commercial licence and the Ministry consider it necessary.

49. *Para.* 161.—In addition to the salutary practice of surprise checks by Government pilots and flight test, the airlines themselves recall their pilots every six months for a refresher course and subject them to tests.

50. *Para.* 162.—In the conditions of India the precautions laid down in the Indian Aircraft Rules are essential in the interest of safety. The suggestion that there should be no control after the licence has been granted during the period of the licence is not consistent with safety, *e.g.*, a licence may be renewed for one year but the pilot, who has not been flying for two or three months, should not be allowed

to fly a commercial air transport without a flight test, as is done in the U.S.A.

51. *Para.* 163.—The Pathankot Inquiry Committee held that there should be an independent check. The flying test should be conducted by the Government check pilots and not by the check pilots of the company, whose impartial judgment will be subject to the influence of personal contacts and the pressure of the airline executives in the interest of economy. This has been actually found in the case of tests done by Check Pilots of airlines in India.

52. *Para.* 165.—Mere examination of the records and infrequent personal observation of a Check Pilot will not ensure the competence of the Pilot. In the U.S.A. the check pilots appointed by the C.A.A., the opposite number of the DGCA, make surprise visits and the same procedure should be followed in India. We should take advantage of the system found essential in the most advanced civil aviation country in the World.

53. *Para.* 173.—In my opinion, our rules should lay down 90 hours per month and 1,000 hours in the year, the power of relaxation being vested in the DGCA in case of emergencies.

CHAPTER VI

Policy of recruitment and training

54. *Para.* 176.—The economic reasons stand in the way of sport and joy flying.

55. *Para.* 180.—Most of the clubs were foreign dominated and naturally Indians got a minor share in flying. The results should have been different if instead of flying clubs, Government had established Government controlled flying schools for Indians.

56. *Para.* 181.—While the number of commercial pilots turned out by the flying clubs post-war has been satisfactory, the quality has been generally poor. The future of Civil Aviation cannot be based upon such pilots, the majority of whom are unfit for air transport pilot's licence by reason of their technical and educational qualifications or rather lack of them.

57. *Para.* 182.—The number of holders of "B" licence is only 420 as against the estimated number in employ of 380. This does not support the cry that an unduly large number of "B" licensees are unemployed. It also shows that the Civil Aviation Department and Government were alive to the problem and appointed the Committee to examine it.

58. *Para.* 183.—There has been a downward tendency in the price of fuel and oil since.

The calculation of additional expenditure of Rs. 80 lakhs owing to increase in prices of fuel, oil and spares is inaccurate, as the quantity of fuel and oil consumed by foreign operators within India for which Indian airlines do not have to pay has not been excluded and the cost has been exaggerated. In any case, Government will be running their own Corporations and it is hoped that they will believe the passimism that there was no possibility of expansion of the air industry in the future. My colleagues have only repeated the cry of interested airline companies.

59. *Para.* 184.—Government have already announced that they will retain the services of all the pilots and the fear that a lesser number would be necessary is, therefore, non-existent. I agree with the calculation of annual requirement of 30 new pilots.

60. *Para.* 186.—In U.K., U.S.A. and Switzerland ex-Air Force personnel are utilised because they are available but in U.K. and U.S.A. that is not the only source of supply. In Holland, where aviation unlike U.K. and U.S.A. is considered purely on commercial considerations, they have found it necessary to incur the cost of establishing a Civil Flying School fully equipped for the training of commercial pilots to man their world famous K.L.M. airline and they do not take Air Force men.

61. *Paras.* 187 *to* 193.—I agree with the suggestion in the hope that there will be surplus I.A.F. men of good quality who could be spared and that no additional cost will be borne by the I.A.F. for separate specialised training to fit their officers for Civil Aviation. That training could be given cheaper in the Civil Aviation Training Centre, the comparative I.A.F. costs being higher.

62. *Paras.* 194 *and* 195.—I entirely agree that the Civil Aviation Training Centre should be maintained and should be equipped and developed on modern lines and that if half of the requirements can be obtained from the Air Force, they should be so obtained. I also agree that the flying clubs should not be restricted from training commercial pilots but the *entire* cost of such training should be borne by the pilots and it should not be subsidised by the State.

CHAPTER VII

Cost of training and the responsibility of the State

63. *Para.* 198.—Prior to 1939 the trainee had to pay more than Rs. 25 per hour. Properly organised training for "A" licence should not take more than three months.

64. *Para.* 199.—The training for commercial pilot should not take more than one year.

65. *Para.* 200.—The airlines undertook the burden of training when there was paucity of pilots. They naturally preferred trained men, if available. The D.G.C.A. directive requiring trainees to be qualified before they flew as co-pilots does not prohibit the airlines from employing them and paying for the training or else giving a loan to the trainee and deducting it from his emoluments subsequently.

66. *Para.* 201.—The number of admissions to the CATC was limited to the requirements of the industry and recruitment was done on the basis of open selection. The Committee itself has recommended that except for the limited number they consider it necessary for absorption in the air transport industry, other commercial pilots should be required to meet their cost in full *vide* para. 195 of the Report. Government, therefore, in fixing the fee at the CATC have followed the same principle and do not merit criticism.

67. *Para.* 202.—In the conditions of India, State aid for flying training is necessary. In other countries cited it is not on such a lavish scale as in India or are the costs of flying as high. In the U.K. only 50% of the pilots are ex-personnel of the Air Force and the rest have to pay for their own training without any aid from the State. In the U.S.A. no subsidy of any kind is given.

68. *Para.* 203.—It will be seen that from 1949-50 to 1951-52, *i.e.* a period of three years, the clubs spent nearly a crore of rupees and produced 571 "A" licensees, 5 A-1 licensees and 213 "B" licensees. Converting "B" licensees into "A" licensees, the cost for the training of "A" licensees works out at Rs. 6,000 per licensee, which is much higher than similar costs in the expensive U.S.A., U.K. and Australia.

69. *Para.* 204.—I would like to add what Shri J. R. D. Tata told us in the course of his informal talk that proper training facilities did not exist in Indian airlines and in his own airline, Air-India, it was not upto full requirements and modern standards. It may be mentioned that excepting Air-India, no other airline has any training equipment and of the others, the I.N.A. had one Link Trainer, which was also not always in commission. The absence of elementary Link Trainers, leave alone advanced equipment, disproves the airline claim of organised training and expenditure connected with it, which figures are more or less fictitous designed to get more money out of Government. The absence of detailed account of training expenditure is another testimony. Raw pilots were taken by the airlines and put in as co-pilots and we have to thank our climate and Providence that more accidents did not occur. The airlines always clamoured for concessions from rules and raised a hown when concessions were refused, the latest instance being opposition to DGCA insistence on proper training and test of pilots.

I would recommend that the cost of specialised training at the CATC should be borne by the Government and the trainee and thereafter for further training, checks, etc., it should be borne by the Corporations for airlines, as is the practice in other countries. If Government would accept the liability for conversion training and pilot-in-command training of the various categories of aircraft, the financial burden on the tax-payer would be extremely heavy.

70. *Para.* 205.—I agree that conversion training in aircraft other than Dakota should be given by the airlines but the cost of such training should be borne by them and not by Government, in accordance with the practice in other countries.

71. *Para.* 206.—Accepting that private persons cannot afford the cost of training for "A" licence and that the bulk of the expenditure should be borne by the State, the inference follows that those who are the fittest and can be of service to the country during emergency should receive such training. The N.C.C. cadets come under this category and free or concessional training should be given to young people, who join the N.C.C. Others should continue to pay on existing rates. I see no justification for our country subsidising the training in flying of foreigners and charging them the nominal rate of Rs. 10 per hour. This generosity is not extended even in the richest of countries, namely, the U.S.A. nor in U.K. nor Australia where foreigners take second place to nationals.

72. *Para.* 207.—I agree that for the limited number selected for admission to the CATC, the fee should not exceed Rs. 4,500 from *ab initio* training to the Dakota conversion course. This concession should not be open to every one and, as mentioned in paragraph 195 of the Report, other trainees for commercial licences should meet their full cost.

73. *Para.* 208.—As the customs duty is only 2½%, the matter of exemption of this duty is not so important as the matter of application of the duty regarding which difficulties have been reported. As India will shortly be producing its own light aircraft, it may be necessary in fact to raise the duty on import of similar aircraft in the interest of indigenous industry.

74. *Para.* 209.—The system of concealed subsidy which will be involved in the acceptance of the suggestion is not sound, as it does not give a clear picture. Whatever aid is given to the flying clubs should be direct and straight forward so that the financial picture is better judged.

75. *Para.* 210.—As the fees are small, there seems no necessity of going further and giving complete exemption to private aircraft, which does not exist in any part of the world.

CHAPTER VIII

Future role of the Flying School at the Civil Aviation Training Centre.

76. *Paras.* 211 *to* 213.—I agree.

77. *Para.* 214.—The Corporations will be in a position to set up their own refresher training centres and the CATC should be limited to the preliminary training up to Dakota conversion. This will be economical.

78. *Paras.* 215 *to* 219.—I agree except that in my opinion the proposed Civil Air Board will not be the competent authority to lay down the nature and extent of training at the flying School. The syllabus should be the same as has proved useful at Hample and the KLM School. The proposed Civil Air Board from the nature of its composition will not be competent to evolve anything better apart from the disadvantage, financial and administrative, of duplication of authorities.

79. *Para.* 220.—I agree that there should be three tests—a written examination, interview and a medical test, but I do not agree that for this purpose a new authority of the Civil Air Board is needed. The U.P.S.C. already exists for the conduct of competitive examinations. The U.P.S.C. along with the D.G.C.A. or his representative and the representative of the two Corporations should hold the interviews and select the candidates. The medical test will naturally be conducted by the appropriate medical authorities. I would suggest the subject of flying also to be included in the test. This subject, however, need not be compulsory but those who will not take it will not get any marks and those who undergo this test will get a weightage.

If a cadet is reported to be unsuitable by the Chief Flying Instructor, a Board consisting of the Chief Instructor of the C.A.T.C., one of the Chief Pilots of the two Corporations and the Chief Inspector of Flying should be conducted and they should adjudge the question of his suitability for further training. The Civil Air Board as proposed by the Committee will not have the competence to do it.

80. *Para.* 222.—I would suggest the retention of 3 Ansons and 2 Dakotas, as the question of overhaul and repair and/or replacement consequent in accidents has also to be kept in view. Moreover, in these calculations my colleagues have not taken into consideration the flying training of Air Traffic Control Officers and Communication and Engineering students.

81. *Para.* 224.—The sum of Rs. 53,700 mentioned by the Committee as the cost of training includes depreciation and insurance, which comes to Rs. 37,000 per trainee, leaving a balance of actual expenditure amounting to approximately Rs. 16,700 per trainee of which Rs. 4,500 will be met by the trainee himself, leaving a balance of Rs. 12,200 per trainee against the Government. Compared with over Rs. 6,000 per trainee now incurred by the flying clubs on 40 hours of flying on single engined aircraft, this expenditure on 225 hours on single engine and 60 hours on twin-engined aircraft is moderate.

The view of G/Capt. Chatterjee that for the next 5—7 years Civil Aviation is not likely to expand is against all expert opinion and also against the trend of development during the last few years. According to Lockheeds and Douglas they expect in 5 years time one billion ton miles of cargo alone for domestic services in the U.S.A. The calculation at 30 pilots per year is fairly accurate as it includes both wastage and very moderate expansion.

The performance of the clubs in the training of their pilots for "B" licence, as found out both by the Air Force when they examined them for commission as well as in the C.A.T.C., does not support Raja Saheb Bhadri's contention that the flying clubs are proper venues for training of air transport pilots. Moreover, if the flying schools were abolished, the net saving will not be more than Rs. one lakh per annum *vide* Statement 'A' as the other three schools will have to be continued. For this petty economy it will be imprudent to weaken the foundation of Civil Aviation which depends so much upon sound training. The Government of Netherlands spend as much as £10,000 per trainee. The Government of Netherlands spend as much as £10,000 per trainee on training.

82. *Paras.* 225 *and* 226.—I agree that a fee not exceeding Rs. 4,500 should be charged for the training at the C.A.T.C. I have shown the real cost will not be Rs. 53,000 per trainee, as allowance must be made for the fees received, and depreciation and insurance expenditure, which is not actually incurred and shown in the budget, need not be considered.

83. *Comments on the statement giving particulars of the estimated total cost of training to* 15 *pupils per year (pages* 192-193 *of the Report).*—The price of fuel and oil has come down since and, therefore, the amount will be lesser. Similarly, the provision of Rs. 39,900 for spares for airframe makes it Rs. 88 per flying hour, which is on the

excessive side. The cost of overhaul of P. & W. engine and major overhaul of Dakota per annum will not work out at Rs. 31,800, as for 900 engine hours for Dakota, the overhaul will be required once in two years, and similarly modifications would be possible in regard to major overhaul of Dakota on progressive basis, thereby reducing the cost. The full cost of the engineering staff, flying staff and ground staff as well as establishment including medical and welfare has been shown on the flying side while in actual practice it should be less. No expenditure on depreciation and insurance will be incurred. Moreover, from the second year there will be 30 trainees and not 15 and therefore, the overheads will be halved. Roughly speaking, the costs should not be more than Rs. 22,000 on which Rs. 4,500 will be reimbursed as fee from the trainee, leaving a balance expenditure of Rs. 17,500.

CHAPTER IX

Flying Activities of the Air Wing of the N.C.C.

84. In my opinion every encouragement should be given to the N.C.C. movement and this can best be achieved by giving free training only to those who join the N.C.C. and charging others the full rate. As every college student is eligible for the N.C.C., it is open to him to take advantage of free flying training. If the entire subsidy given by the Centre as well as the States is devoted to the training of the N.C.C. cadets, their number can be doubled or even trebled and we can easily turn out a much larger number of good trained personnel which serve the country in emergency instead of indifferent and poor material as at present in the clubs. The N.C.C. trainees will be first class material in view of preliminary selection, physical fitness, training in discipline and other instruction that they will have received before they commenced flying as against the material which the Club has been training without any kind of selection.

CHAPTER X

The future of the Flying Clubs

85. *Para.* 237.—In view of my colleagues' finding that there is little demand for sport and joy flying in India, the purpose for which the flying clubs were established in India 24 years ago, their description that they are great store house for enthusiasm and inspiration for drawing out the potential air sense of the people of the country, seems inaccurate. During the war also the Defence gradually took over all training in their hands and closed them which again shows, as was found subsequently by the Wilcock Committee, that the flying clubs have little defence value. The squabbles in Madras, Calcutta and Bombay neither indicate any healthy spirit and where squabbles have not arisen, they are either under the chairmanship of officials as in Northern India Flying Club and in the Bihar Flying Club or else under the control of individuals whose group is well entrenched. The system of payment of honorarium that has started in one or two clubs and also the system of the paid employee being the *de facto* controller of the club as Secretary has robbed them considerably of the virtues of a democratic set-up, which is further indicated by the usual extreme poor attendance of about 20 members at the annual general meeting, who belong to the same group and year and after

year almost select the same set in the committee of management and constitute a kind of vested interest without effective democratic control and which intrigues, manœuvres and resists any official control under the false cry of official interference in non-official matters. Unlike U.S.A. and U.K. where both money and technical experience in public life exists in a very large measure and feeds and justifies flying clubs, we have paucity of both in India where the Government have to meet the bulk of the expenditure of the clubs. From the point of view of logic, therefore Government run flying schools rather than flying clubs; are indicated. But as the clubs have existed so long, that would be appropriate, drastic and unpopular step. It would be appropriate, therefore, to continue the flying clubs but introduce reforms which will prevent the evils of the past. In my opinion, the President, the Vice President and the Secretary of the clubs should not be eligible for election for more than 2 terms and their appointment should be subject to approval of Government. After such approval, they should not be removeable for their terms except on definite proved charges and not merely by a bare majority of the executive committee. One third of the Managing Committee members should be the nominees of Government and the term of the committee should be limited to two years, the non official nominees being changed on the basis of rotation of half one year and the second half second year so that there will be continuity of administration and there will not be sudden change nor vested interest will grow.

As regards salaries of the staff, they should be in a scale approved by Government and the clubs should not have the authority to vary that scale without the permission of Government. This will put an end to staff intrigues for promoting their own interests. Of course. in fixing one scale, consideration will be given for local allowances in places like Bombay and Calcutta, where the cost of living is higher.

The clubs accounts should be audited by Government Auditors and for that purpose a qualified officer should be appointed in the office of the D.G.C.A.

The trainees should not have the right to vote.

86. *Para.* 238.—I entirely agree that there is considerable scope for improvement in discipline, economy and efficiency.

87. *Para.* 239.—I agree that the flying clubs should cater for training for Private Pilots's licence and also sport flying.

88. *Para.* 240.—As the C.A.T.C. and the flying clubs give different kind of training a common basis for comparison does not exist. It is also remarkable that the flying clubs did not make available to the Committee the correct data for determination of cost. The argument that the number of pupils who will join and the number of aircraft that will be required could not be estimated by the clubs does not seem impressive in view of 24 years experience of the clubs which as a result thereof should have been able to estimate approximately their requirements. Their failure to do so is a sad commentary on their efficiency.

89. *Para.* 241.—The fact is to be borne in mind that pre-war the total number of hours flown in the flying clubs was less than 10,000

and still they continued more or less as economic units. It is correct that with the disappearance of the commercial pilot training and there being little demand for Private and Sport flying unless Government provides the pupils and plays a substantial part of their cost, the clubs will not have the minimum number of hours of flying to be economic units.

90. *Para.* 242.—In my opinion, Government should concentrate their expenditure on expansion of the Air Wing of the N.C.C., which will ensure regular flow of pupils to the flying clubs and also ensure the country that its money is spent on proper material.

91. There is no sanctity about 3,500 hours of flying, as with lesser aircraft and lesser staff, the clubs can be economic units as they were pre-war on much lesser hours of flying. It should be cheaper to store additional aircraft than spend large sums of money on them on the basis of poor utilization.

The existing scales of salary arose out of extraordinary post-war conditions when there was great demand for engineers and pilots, which conditions no longer subsists. There seems no reason why the club employees should have higher scales of salary than existing in the Air Force and Government services of the States for similar work. These scales have been fixed after careful consideration of all aspects and should not be departed from, particularly as the clubs too depend upon Government funds for their existence. The cost at Rs. 80 per hour, is my opinion, is excessive. In U.K. and Australia it works out at £3 per hour. In both places labour is much more expensive. In India the cost should not exceed Rs. 60 per hour, which was achieved by the Bengal Flying Club in 1950-51.

92. *Paras.* 243 *and* 244.—Normally an institution arises to meet the needs. In this case, the argument that needs must be created to justify the institution is the reverse of that principle. It is not necessary that each club must have 3,500 hours of flying. On lesser staff and lesser number of aircraft with efficient management it can be an economic unit. Moreover, if the fee is limited to Rs. 10 per flying hour, there will be adequate demand from among the students and other nationals of the country to provide adequate hours of flying to the clubs. I am strongly opposed to give the benefit of flying on a nominal fee of Rs. 10 per hour, which is one-eighth of the cost of Rs. 80 calculated by the Committee, to foreigners. At this rate they do not get flying even in their own country. There is also the risk that with their better status and position the foreigners may come to occupy a position to the prejudice of the nationals. I appreciate the keenness to provide work for the clubs but it seems to me rather going too far that institutions should be financed from public funds for the benefit of foreigners. We are not rich enough to afford this generosity when we are unable to meet the bare needs of our own countrymen.

93. *Para.* 245.—The fee of Rs. 25 is lesser than the fee of Rs. 35 pre-war but still is beyond the purse of an average Indian. The N.C.C. will get the training free and as regards others, who will not be of material value to the country, there seems no necessity for reducing the fee to Rs. 10. The public expenditure should be concentrated on the best material and whatever money can be afforded should be on the expansion of the N.C.C. Air Wing.

94. *Para.* 246.—I regret my inability to share the enthusiasm for subsidised training to foreigners, as Indian nationals in the U.K. and elsewhere have to meet the full cost of their training in flying. I believe the policy of Government is to foster airmindedness among the nationals of the country and not foreigners. I agree that with the limitation suggested Indian nationals should be able to do sport flying at Rs. 25 per hour if they are below 28 years of age and Rs. 40 if they are above it. For 5 hours of flying for renewal of their licence the charges may be Rs. 10 and Rs. 15 per hour respectively for those below 28 and above 28 year of age.

95. *Para.* 247.—According to my calculation, the cost should not exceed Rs. 60 per hour, as achieved in the Bengal Flying Club in 1950-51 and in fact there seems room for further reduction. I attach copy of a statement *B* which gives the details of the cost and how it has been worked out. On this cost there need be no increase on existing subsidies. I have already pointed out that it is not essential that the minimum number of flying hours should be 3,500.

96. *Paras.* 248 *to* 250.—The existing subsidy of Rs. 15 lakhs by Government and the subsidies paid by the States with further subsidies from the States who do not pay yet and additional subsidies for N.C.C. should be enough to meet the cost of the 10 clubs. The number of hours need not necessarily be 3.500 per club.

97. *Para.* 252.—As the aircraft will be owned by Government, the clubs will not have to incur expenditure on depreciation. As regards insurance, the clubs should be made to pay at 10% in a central pool operated by Government to meet the cost of damage and loss of aircraft.

98. *Para.* 253.—The existing subsidies are enough to meet existing needs if they are properly utilised. I have no objection to larger expenditure on promotion of aviation flying but I feel the case of subsidy based on excessive cost will be harmful to the interest of the country, as it will involve wasteful expenditure and more than that create a tendency to wastefulness and little regard for public funds.

99. *Para.* 254.—The proposal that the Centre should give more aid if the State gives less or nothing will tend to stoppage or diminution of State aid to the flying clubs in the hope that the Centre will meet the gap. It is also for consideration whether the *raison d' etre* of the non-official character of the clubs in raising funds will be fulfilled, if they depend entirely upon Government subsidy. It will kill initiative.

100. *Para.* 255.—The D.G.C.A. is an attached office of the Government and is not outside Government. The argument therefore, that the D.G.C.A. should not exercise control but Government should, is ununderstandable. The allegation that all power is concerned in a single individual, namely the D.G.C.A., is against facts, as he is subject to the control of Government and carries out only the policy of Government. No instances have been cited during evidence of D.G.C.A. interference with day to day administration of the clubs. The system of conference and persuation has been followed. to thrash out bigger problems. The trouble has been that the clubs would not listen and carry out the recommendations even of the economy committees appointed by themselves, as happened in the Delhi Flying Club. The real trouble of the clubs has not been Governmental or D.G.C.A. interference but the vested interests of groups that have grown up.

101. *Para.* 256.—I would respectfully submit that the proposed Civil Air Board will be incompetent to lay down details of the curriculum of training worked out by the I.C.A.O. experts.

102. *Para.* 257.—I agree.

103. *Para.* 258.—On a balance, all Governments and institutions have found advantage in laying down scales of pay and the flying clubs seem no exception to that rule. *Ad hoc* fixation of pay of individuals will lead to no end of intrigue and trouble.

104. *Para.* 259.—The Committee's calculation of standard cost of flying at Rs. 80 per hour works out at Re. 1-5-4 per minute. As the recommendation is that the cost of service should be included in the rate to be charged, will an ordinary Indian be able to afford this rate? The trainer-aircraft in which only one passenger can be carried is hardly suitable for joy-rides, which should be given on larger aircraft carrying four persons at least.

It is also for consideration that with the expanding air travel in India whether these joy rides are now as necessary and should be subsidised as they were in 1930—32. People have already become airminded and it is only the purse which prevents a larger number from flying.

105. *Para.* 260.—In my opinion, the standards, educational and physical, laid down for the N.C.C. cadets should apply to all persons whose flying is subsidised but those who will pay their full cost need have only the fitness.

Comments on the statement of standard cost of operation of a club (pages 227 and 228).

106. For details my statement at appendix "A" may be seen but I would like to make the following observations:—

Engineering Staff.—Far too many men and each club should not attempt overhaul of airframe and engine which should be done at the C.A.T.C. FOR ALL CLUBS WITH resultant economy. The club engineering staff should be confined to ordinary maintenance for which 1 Ground Engineer, 1 Assistant Ground Engineer, 3 mechanics and 2 cleaners should be sufficient.

Office Staff.—I found in the Teterboro School of Flying only 3 employees and they should be enough for our clubs too. Instead of 2 watchmen, one is required. There should be one peon. There is no necessity for a stenographer and the sweeper need be part time.

Depreciation of aircraft.—As the aircraft will be owned by Government, this cost will not be incurred by the clubs. Depreciation is not shown in Government budget accounts.

Insurance of aircraft.—There should be a pool and the rate should be 10% and not 15%. As regards crew insurance, they should pay the premium themselves, as is done in other countries.

Postage, telegrams, telephones, etc.—There is considerable room for economy on postage, telegrams, telephones, printing, stationery, travelling allowance and light, power and water.

If these economies are done, the cost will be well below Rs. 60 per hour.

CHAPTER XI

The problem of Unemployment

107. *Para.* 263.—Most of these "B" licensees are unfit to be airline transport pilots and further expenditure on them will be throwing good money after bad. If the raw material itself is poor, not much can be gained by additional expenditure, which would be more fruitful on capable material.

108. *Para.* 264.—I agree that the holders of "B" licence should equally be eligible for selection for training at the C.A.T.C. but, in my opinion, the proposed Civil Air Board will not be competent to make the selection.

109. *Para.* 265.—Considering the very large number of replacements of foreign pilots during the last three years by Indian pilots I do not think that their replacement has to be a slow process. They should be replaced as early as possible, as it is only legitimate that competent nationals of the country should have preference. I, therefore, do not share the solicitude of my colleagues in regard to foreign pilots. As regards vacancies being available to holders of "B" licence, I would emphasise that only those who are really found fit after proper selection and training should be allowed to join the air transport industry as pilots. It will be cheaper for the country to pay Rs. 12,000, the reported cost of their training as "B" pilots, than to build the foundation of air transport on such weak material. There should be absolute ruthlessness in selection of pilots for air transport industry in order to meet the requirements of the more and more complicated aircraft of the future and to ensure the lives and property of the travelling public.

110. *Para.* 266.—In fairness to the Air Force it must be stated that they tried this for two years but found the pilots trained by the flying clubs extremely unsatisfactory. In our Air force service there is no room for the second best, educationally, mentally or physically, in the interest of the security of our country.

111. *Para.* 267.—I agree that suitable holders of "B" licence should be trained for crop dusting and glider instructors.

112. *Para.* 268.—In many well known airlines in the U.S.A. though the official limit is 90 hours of flying per month, in actual practice the staff is appointed on the basis of 70 hours of flying per month to have a concealed reserve of 30% in case of emergency and sudden expansion. The pay scales are based on 70 hours of flying and the pilots get overtime if they have to do more than 70 hours a month. This system seems attractive in the context of the needs of our country.

113. *Para.* 269.—I agree, as my colleagues have laid down the proviso that the holder of "B" licence must fulfil other conditions of recruitment of air traffic control officers.

114. *Para.* 270.—I agree that a selection must be made and I am afraid if proper qualifications are insisted upon, a large majority would be unfit.

CHAPTER XII

Civil Air Board

115. *Para.* 272.—I have to add that the D.G.C.A. is subject to Government control and has a very large technical establishment to fulfil the various varied functions he has to perform. The pattern is the same in the U.S.A., Australia and other countries.

116. *Para.* 273.—The D.G.C.A. has been associating a representative of the Air Force in all selections of pilots for training at the C.A.T.C. and also in certain matters at the time of examination. Examiners are also appointed from Engineers and Pilots of airlines if they are available. Now as Government owned Corporations will operate air transport, their technical staff would both be associated with examinations at the C.A.T.C. as well as selection of the pilots. All this is already done. There is thus independent check over the functioning of the C.A.T.C. The curriculum is set according to I.C.A.O. decisions and details are worked out by committees in which outside technical personnel is invited to attend. All that the Committee, therefore, recommends is already done and there seems no necessity for another duplicate body. The D.G.C.A. is not personally running the C.A.T.C. and his job is supervisory. He is subject to the control of Government, which is responsible to the Parliament.

There would hardly be the necessity for having a highly paid officer like the D.G.C.A. to carry on the mechanical duties of employing examiners appointed by the Civil Air Board and issuing licences according to their directions. This work can be done by clerks. In no other country a Civil Air Board has been appointed to control Civil Aviation, as suggested by the Committee and there has been opposition to duality of authority. Aviation needs quick and prompt decisions as well as effective and vigilant supervision, which cannot be done by the divided authority of the proposed Civil Air Board, which will result not only in larger and unnecessary expenditure but in lobbying, delays and indecisions.

117. *Para.* 274.—There seems a contradiction in the argument, as on the one hand emphasis is laid on the operator being left to decide on his checks and tests of pilots without interference of the D.G.C.A., on the other hand it is proposed that the Civil Air Board should be able to exercise the functions, namely, having its own staff to examine the records and make personal checks of the tests conducted by the airline pilots. The D.G.C.A. is more competent to discharge these functions than the proposed Civil Air Board consisting of so many persons. In the U.S.A. the C.A.A., the opposite number of the D.G.C.A., exercises exactly similar checks as the D.G.C.A. has now started in India in respect of pilots and check pilots of the airlines. It is only natural that the D.G.C.A. being the authority issuing the licence should have the power to test those whom he grants licences and he should have staff for the purpose under his control. This shortcoming in the past led to a number of deplorable avoidable accidents caused by pilot error and the Pathankot Enquiry Committee presided over by a High Court Judge as well as the Safdarjung Inquiry Committee presided over by a judge of the Supreme Court emphasised the necessity of independent testing and control by the D.G.C.A. In U.K. notwithstanding that the air transport industry in the main

is operated by Government-owned and controlled Corporations, the power of the Ministry of Civil Aviation, which now has taken over the functions of the D.G.C.A. directly, to check and test pilots. etc., exists and is exercised. This most essential, as Corporations are apt to look into economy and may try to save in tests and training, which the independent Ministry and D.G.C.A. would not do. Aviation safety requires nothing less. The most advanced country in aviation where private initiative has the fullest play, namely the U.S.A., has even more strict control over training, pilot checks, etc. As I have previously pointed out, there should not be any diminution in these safety measures if air transport is to advance on safe lines. The Ministry of Civil Aviation in the U.K. has the power to lay down tests and procedures, and in India D.G.C.A. as a part of the Ministry of Communications exercises the same authority. Even my colleagues claim that authority for the Civil Air Board from the Ministry!

118. *Para.* 275.—Little justice is done to the great personal interest that the Minister, the Deputy Minister, the Secretary and the other staff of the Secretariat take in framing policy and rules in regard to Civil Aviation. The D.G.C.A's proposals are critically examined. There are conferences and discussions in which, where necessary, members of the airlines have also been invited before a decision is taken. The picture given, therefore, is incorrect. The D.G.C.A. has the duty of implementing Government policy and Government has supervisory power to see that it is properly implemented. The D.G.C.A. decisions are subject to revision and control by Government. It is, therefore, wrong to say that the D.G.C.A. combines all powers, judicial, executive and policy making, in a single person. As regards accidents investigation, only petty ones are investigated by the D.G.C.A. staff and for others Government appoint a committee of inquiry, which reports to them direct.

It is also wrong to say that the Minister at present has to depend upon the single advice of the D.G.C.A. Being a responsible Minister, he has a Standing Advisory Committee of Parliament, Members of Parliament, the members of the public and the air transport industry, who see him and talk to him on all matters concerning aviation. There is also the Secretariat.

The Scientific Advisory Committee was appointed in 1950 on the analogy of similar committees in other Ministries. In actual practice, Government themselves found during the last two years no necessity for it, as Government have had no occasion to refer a single matter to it for advice and as regards technical and scientific matters, no such occasion arose and even the Members of the Committee itself failed to suggest any subjects for discussion. Public funds would have wasted to call a meeting without a proper agenda. It only proves that in aviation, as in other countries, in India too, no such body is required.

The analogy of the C.A.B. is fallacious, as the functions of the C.A.B. are entirely different from the proposed functions of the Civil Air Board in India. The C.A.B. functions are more or less the functions of the A.T.L.B. The C.A.A. not merely administers the safety regulations but makes its own regulations for pilot training, testing, airworthiness and similar matters just as the D.G.C.A. has the duty to do in India. As there are enough bodies to advise Government on national air policy, this new additional advisory body will only mean unnecessary public expenditure and like any other additional unnecessary piece in any mechanism will only retard operations rather than promote them. The system of *ad hoc* committees suited for the purpose, as have been appointed from time to time, is better and cheaper than a permanent body of fixed men, who cannot be suited to tackle all problems. It is to be noted that the D.G.C.A. has as many as eight Directorates full of technical personnel to formulate, advise and execute decisions and make proposals to Government for approval. The proposed Civil Air Board will not have any such wealth of qualified personnel.

119. *Para.* 276.—It is human nature to protest against any curbs. In the past, as D.G.C.A. had no staff, the clubs did as they pleased with poor results as found by the Indian Air Force when they examined the licence holders trained in the clubs. Vested interests grew up and proposals for reform and efficiency met with opposition of those interests. No definite instance has, however, been proved by the clubs before the Committee when the D.G.C.A. acted against the interest of the clubs and his solicitude for them was amply proved when he fought for non-diminution of the Club subsidy by a single pice in spite of demand for retrenchment. If the statements of a few interested persons, however, are to be accepted without scrutiny, no committee, no individual and not even Government today are without blame. The existing system has worked all these years and it is for consideration if the post-war expansion that has taken place in the club flying, could have been achieved without mutual cooperation and joint efforts of the clubs and the D.G.C.A. Too much meaning, therefore, should not be read into the bickerings of a few interested persons. I may repeat that it is inaccurate to say that the D.G.C.A. in his person possesses wide autocratic powers.

120. *Para.* 277.—No more has been attempted by the D.G.C.A. than to secure the best use of the subsidies and the clubs did not give a single example of any improper interference in their internal administration.

121. *Para.* 278.—I have already shown that sufficient grounds do not exist for the creation of a new body, the Civil Air Board, and the heavy expenditure it will involve.

As regards the Members of the Board proposed, I observe as below: —

(1) The non-official Chairman will not have the competence to deal with the various technical questions that would arise.

(2) The representative of the Air Headquarters will not have the competence and authority of the Defence Ministry, which co-ordinates with the Communications Ministry in such matters.

(3) The various problems will require different men of the Civil Aviation Department to deal with them and so the same person from the D.G.C.A. staff cannot usefully be a Member to deal with all the problems.

(4) Similar objection pertains to representatives of the Air Corporations as to the representative of the D.G.C.A.

(5) Honorary services of a pilot of outstanding ability and experience would not be available. Very high salary will have to be paid to him and he would not be able to deal with all the problems.

(6) He will be a non-technical man unfamiliar with larger problems of aviation and familiar with the limited problems of the flying clubs. He will, therefore, be handicapped in his advice on the larger matters.

(7) Members of Parliament have already opportunity to offer their suggestions in the Parliament and there is a Standing Advisory Committee of Members of Parliament to advise the Minister.

The proposal to have a wholetime Chairman and Secretary will involve heavy expenditure as also the travelling allowance of the various Members that will have to be paid.

122. *Para.* 279.—My observations on the proposed functions of the Civil Air Board are as follows:—

(1) 30 men will be trained once in a year and the U.P.S.C., a representative of the Air Force, a representative of the Air Corporations and a representative of the D.G.C.A. can do this job well once a year.

(2) The Civil Air Board from its composition will be incompetent to improve on the curriculum laid down by the I.C.A.O. experts for various categories of licences, which has to be followed both at the C.A.T.C. and the flying clubs. Within those limits the technical staff of the C.A.T.C., the flying clubs and the D.G.C.A. as well as the two Corporations will be better qualified to lay down these details. In any case, this is not day to day business.

(3) These are vague functions and no details are given as to how the standards of training, discipline and instruction will be maintained at the C.A.T.C. and the flying clubs.

(4) It is not explained how the Civil Air Board will exercise control to ensure the best use of financial assistance given to the clubs when it is laid down that there will be no interference with the management. How a Board consisting of 7 persons will be able to have better liaison with the clubs than the D.G.C.A. and his staff has is also not explained.

(5) Examiners can best be selected by the D.G.C.A. from all technical personnel both departmental as well as outside and there seems no necessity for a Board of 7 Members to do this job.

(6) How will the Members of the Civil Air Board ensure that pilot and air crew maintain their standards at the highest level is not explained.

(7) Again a vague expression of hope.

(8) The national civil air policy is determined by the Cabinet and the Ministry of Communication as well as the Defence Ministry in joint co-ordination and consultation. The Board by its composition will be the least competent to

advise on such matters. There is the Parliament and the Standing Advisory Committee of Parliament also.

(9) Under the existing rules the D.G.C.A. and his staff of technical advisers advise the Ministry. The Minister also gets advice from others who meet him as well as the Standing Committee of Members of Parliament. The Civil Air Board is, therefore, redundant for the purpose.

CHAPTER XIII

Miscellaneous matters

123. *Para.* 280.—Scales must be laid down as in other Government services, because Government will have to foot the bill eventually.

124. *Para.* 281.—In the interest of safety, Government must exercise power through the D.G.C.A. in regard to qualifications of check pilots, instructors and their periodical checks. It is interesting that the paras. 282 and 283 the Committee themselves feel it necessary to suggest qualifications.

125. *Paras.* 287 *and* 288.—I agree. There is no comparison between the Aero Club of Great Britain and the Aero Club of India except in name. Similar conditions do not exist and it is for consideration whether money should be spent on promotion of an institution which has failed to creat any popular response in spite of Government subsidy, association of very big persons and earnest effort made. Even the annual meetings are so poorly attended and the membership far from growing has tended to decrease. Will a building and further expenditure arouse more enthusiasm or only provide amenity to a few persons not of much value to the country as a whole.

126. *Para.* 290.—It takes a long time to build up training facilities and technical personnel. It is time that India started with Helicopters and the best place is the C.A.T.C. The Corporations should not be burdened with unremunerative expenditure. When Helicopter flying develops, they can take over the later training but as in the case of air transport pilots, the initial training should be given at the C.A.T.C.

127. *Para.* 291.—As the Clubs will not be in the future training "B" pilots and as training in crop dusting requires special skill. I think the C.A.T.C. will be a better place for the training of these pilots, who will all be "B" licence pilots.

CHAPTER XIV

Development of gliding in India

128. I agree with the proposal that gliding clubs should be located in the Universities. The non-recurring and recurring cost given on pages 270 and 271, however, seems excessive. As regards gliders, the number and prices mentioned both are excessive, as with the manufacture of gliders in India, the cost would go down considerably. Similarly, the price of winch, spare motor and station wagon noted is also excessive.

As the Universities have their own buildings, all that is needed would be a hangar with an attached workshop providing the necessary facilities. The University will have its own recreational buildings. Similarly, the expenditure on workshop, trailers, water and sanitary equipment as well as hutments for labourers and chowkidars will not be needed as is noted. There is no necessity to buy a trailer for retrieving a glider from cross-country. It can be borrowed for the occasion. A station wagon is not at all necessary and a jeep should do. The cost for equipping a gliding club, therefore, should be not more than a lakh of rupees to Rs. 1,25,000 non-recurring.

As regards operational cost, the staff of the University can be trained as Instructors and honorarium given to them at Rs. 100 each. No carpenter need be employed, as in the Universities' carpenters already exist. Similarly, the technical personnel in the University can easily look after the simple mechanism of a glider. A storekeeper would be necessary but no additional chowkidars and helpers would be necessary, as they will already be found in the University. No automobile engineer is needed to operate the winch or the automobile, and a fitter driver on Rs. 100 per month should be ample instead of the recommended salary of Rs. 250 per month. No additional sweepers or office peons would be needed, as they would be found in the University. No payment for auditors or accountant would be required, as they would be again found from the University. The maintenance and repairs of hangar building can again be a part of the University expenditure nor gliders need be replaced every year nor other equipment. Similarly, excessive calculations have been made for replacement of parts, fibre, glue, etc. The sum of Rs. 70,000 can in this case again be halved provided co-operation is received from the University authorities without which the expansion of gliding is not possible.

The estimated cost, in my opinion, therefore, would be 50% both recurring and non-recurring of what my colleagues have calculated. Gliding deserves development. The funds at present are inadequate. As regards management, it should be left to the University authorities but a central school for the training of Instructors under the C.A.T.C. should be developed. The existing gliding club at Poona should be made over to the University.

With regard to the development of airmindedness, I have no additions to suggest.

CHAPTER XVI

Financial implications of the recommendations

129. *Para.* 308.—The cost of the flying side given is excessive and a better way of judging the actual expenditure would be the negative one of what will be the saving in case the flying side of the C.A.T.C. were abolished. The saving will be only Rs. one lakh.

130. *Para.* 309.—In my opinion, even under the existing amount of subsidy, a much larger number of "A" pilot licensees can be turned out than has been done by the clubs. Assuming the cost at Rs. 60 per hour of flying on a total receipt of the clubs of the Central Government grant, the State Government grant and the fees, *i.e.*, roughly

Rs. 30 lakhs per annum and calculating the number of hours to be flown at 50 which is much larger than the existing number of hours. 3,01,000 "A" pilots can be turned out per year as against an average of about 175 "A" licensees and about 75 "B" licensees turned out by the clubs during the last 5 years from 1948 to 1952, as shown below:

	Rs.
Cost of flying @ Rs. 60 per hour for 50 hours for "A" licences	3,000
Total income of the club	30,00,000

Number of "A" licensees, who will be trained

$\frac{30,00,000}{3,000}$ is equal to 1,000 "A" licensees.

Our Air Force programme and capacity does not require a larger reserve but in case it is so desired to increase its number, additional subsidy may be granted.

131. *Para.* 310.—The advantage of gliding is its comparative cheapness and the sums recommended do not accord with that principle. I have previously shown that the cost need not exceed half of what has been calculated.

132. *Para.* 311.—The sum of Rs. 50,000 per annum is a gross underestimate, as a non-official of requisite competence will not be available for a lesser salary than paid to the D.G.C.A., namely Rs. 3,000 per month, nor a full time secretary of necessary competence for less than Rs. 1,500 per month. That alone makes the cost at Rs. 4,500 per month, a total of Rs. 54,000 per annum. In addition the clerical establishment, the stenographer, the peons, the travelling allowance, the cost of stationary, postage and the usual paraphernalia will have to be found which will swell the cost easily to more than a lakh of rupees per annum. There will be heavy cost on the t.a. of Members, who may come from distant places all over India.

CHAPTER XVII

133. *Paras.* 313 *to* 316.—The revised rules are based on I.C.A.O. and U.K. rules and should be accepted. As regards directives, they fall into two categories, one which have legal force and the others which are advisory. Both should be permissible in the interest of safety as hitherto.

134. *Paras.* 317.—The check pilots appointed by the company must be subject to the approval of the D.G.C.A. as hitherto. The D.G.C.A. issues the licences and as such his authority in the matter is logical.

135. *Para.* 318.—The obligation on the operator should remain as it is at present but the control and independent check should continue to be exercised by the D.G.C.A., who should be given more check pilots for the purpose. There is no necessity for the creation of yet another body, the Civil Air Board.

136. *Para.* 319.—The deletion proposed, as it will remove the control of the D.G.C.A., will not be in the interest of safety. The usual procedure is for an independent check on an obligation imposed on some one, and in aviation in view of the hazards involved this is most necessary.

137. *Para.* 320.—In my opinion, the statute should fix the period at 90 hours per month and 1,000 hours a year, exemption being granted under emergency by the D.G.C.A. The actual experience has shown that airlines and pilots both want to exceed the danger point in regard to fatigue under temptation of monetary again.

138. *Para.* 321.—I agree but I would suggest that concentration should be on N.C.C. cadets for Private Pilot's licence and others should pay at the existing rates.

139. *Para.* 321.—I agree.

140. *Para.* 323.—I agree that half the number, namely 15, should be taken from the Air Force, if available, under a pre-selection system and the other half should be selected from other sources to be trained at the C.A.T.C. The 6 months conversion training of the Air Force pilots to Civil Aviation standards in procedure etc. should be done at the C.A.T.C. I agree that the flying clubs are not suited the training of commercial pilots for air transport.

141. *Para.* 125.—The best results would be obtained by increasing the number of N.C.C. Air Wing cadets and giving them free training. As regards other Indian nationals under 28 years and over 28 years of age, the existing rates should continue unless more funds are available, in which case there is no objection to the introduction of proposed nominal fees of Rs. 10 and Rs. 15 per hour. I strongly object to extension of the same concessions to foreigners, as this practice does not exist in any country. I agree with the suggested other limitations on the number of hours of flying and for renewal of licences.

142. *Paras.* 326 *and* 327.—All over the world, including the K.L.M., the airlines have to bear the cost of advanced training, which is gained in the course of operations. A C.A.T.C. passed pilot will be fit for immediate employment in an airline to fly as a co-pilot on a Dakota and the subsequent build-up will be in the course of his service to the airline. It is, therefore, logical that the cost should be borne by the airline, as it is done all over the world. When conversion is done to more advanced types, the airlines have necessary facilities and they can do it. It may be added that periodical refresher courses and tests are a part of maintenance of standard efficiency of operation. In any case, as Government will be making good the loss to their own Corporations, there is no necessity of the Government taking this liability independently. The principle of it will involve Government in a very heavy financial obligation. Operating companies or Corporations will naturally have their own calculations of the cost of such training on different types of aircraft and for refresher training, checks and what not.

143. *Para.* 328.—I agree that the fee of Rs. 4,500 at the C.A.T.C. should not be exceeded.

144. *Para.* 329.—The conditions of this country require flying schools run by Government and not flying clubs. I have already pointed out their grave defects. In view of the past and also to give opportunity to private enthusiasts I recommended that they may be continued for the training of private pilots and the position be reviewed after three years.

145. *Para.* 330.—I agree that the Central Government should continue its subsidy and further recommend that all States should help.

146. *Para.* 331.—I agree that the trainee should not have the right of vote but much more is needed, as I have indicated previously, to reform the management of the clubs.

147. *Para.* 332.—I agree that the flying instructors should be subjected to a categorisation test at the Flying Instructors School of the Air Force at Ambala.

148. *Para.* 333.—The trainer aircraft loaned by Government to the clubs is not suited for joy flying and the clubs should use their 3 or 4 seater aircraft for the purpose.

149. *Para.* 334.—As the fees are nominal and not beyond the capacity of the owners, who can buy an aircraft there seems no reason to abolish them. They do not stand in the way and there is no need of subsidising the rich.

150. *Para.* 335.—We should retain the obligation in respect of pilots trained at the C.A.T.C. because of the heavy cost involved and also because the pilots after training in India may like to serve elsewhere. Surely it should not be our intention to train pilots at our cost for other countries. No obligation need be imposed as regards trainees for private pilots.

151. *Para.* 336.—The pre-war record of the clubs shows that they could exist with less than 3,500 hours per annum and there is no reason why they cannot do so now. If there is lesser demand, there should be lesser aircraft and lesser staff.

152. *Para.* 337.—The fullest encouragement should be given to the N.C.C. men and their number should increase.

153. *Para.* 338.—As I have already shown, if the flying clubs are properly organised and their cost reduced, the existing subsidy will cover the full cost of all the N.C.C. cadets who are available and will produce a larger number of pilots than turned out by the flying clubs at present.

154. *Para.* 339.—As the minimum of 3,500 flying hours is not a *sine qua non,* the suggestion does not follow.

155. *Para.* 340.—No additional financial assistance is needed if the target is to produce 1,000 "A" licensees per year, which is four times more than the average produced by the flying clubs. Our Air Force on the basis of its strength and equipment will not require a larger reserve but if it does and money is available, there can be no objection from purely the point of view of aviation to further subsidies and grants.

156. *Para.* 341.—No additional subsidy is needed as indicated previously and it will act as a deterrent to States if their aid to the flying clubs is taken into consideration in fixing the Central subsidy, thereby penalising the State which helps and benefitting the State which does not help.

157. *Para.* 342.—The reform suggested is extremely inadequate and I have suggested the following:—

(1) One-third of the Managing Committee Members should be nominated by Government and the remaining two-third by election for a period of two years, half of which will retire in rotation each year for giving continuity.

(2) The election of the Chairman should be subject to the approval of Government and he should be irremovable during his period excepting for proved misconduct and mismanagement by Government.

(3) Office bearers such as President, Vice-President and Secretary should not be re-eligible for election excepting for two terms.

(4) The trainee should not have the right of vote.

Without these measures I am afraid the clubs will continue as they have at present and public money will be wasted.

158. *Para.* 343.—The proposal of substitution of the D.G.C.A. by the Civil Air Board entails further expenditure and it is not shown how the Civil Air Board will work better for Government than the D.G.C.A. Such a Board for such a purpose does not exist anywhere else. There will also be duality.

159. *Para.* 344.—The N.C.C. boys will naturally have been selected according to N.C.C. rules and will be fit. As regards others, if they meet their full cost, only medical certificate is needed. If any concessions are to be granted, there must be a Selection Board in which one representative of the D.G.C.A., one of the Air Force and one of the club should sit.

160. *Para.* 345.—The I.C.A.O. curriculum made by experts after prolonged study must be adopted and as regards the competence of the proposed Civil Air Board to improve on it and laying down details I have my grave doubts.

161. *Para.* 346.—I agree.

162. *Para.* 347.—In my opinion, scales of salary must be laid down, as the expenditure is met from public funds. It is to be noted that in U.K. the Chief Pilot Instructors get £460 to £600 per annum and the Engineers about the same amount as against two to four times that salary paid in India. The scale of salaries should be on the level of Air Force officers.

163. *Para.* 348.—The trainer aircraft loaned by Government which is a two-seater plane, is hardly fit for this work and will interfere with training. Other aircraft, 3 and 4 seaters which the Clubs have, are more suitable.

164. *Para.* 349.—(*The duty of 2½% on imports*).—Its abolition is not necessary but more important is the evolution of a procedure to ensure that higher rates of duty are not levied on the ground that some ports could be used for other purposes.

165. *Para.* 350.—There should be no rebate on aviation fuel and there is also a risk of abuse, as then aviation fuel will be cheaper than petrol used in cars.

166. *Para.* 351.—The principle of helping the rich owners of private aircraft by abolition of the nominal rates of landing and housing charges does not accord with modern trends of taxation.

167. *Para.* 352.—As the flying clubs according to the recommendations of the Committee will be training private pilots and as the C.A.T.C. will be training airline transport pilots, no uniform basis of financial assistance exists, as the work is different.

168. *Para.* 353.—The recommendation contradicts the Committee's finding that the number of "B" licensees should be limited to 30 of whom 15 will be found from the Air Force. As the large number of existing "B" licence holders turned out by the clubs are enough for airline transport, the money will be wasted.

169. *Paras.* 355 *to* 358.—I entirely agree.

170. *Para.* 359.—I agree except that for the Civil Air Board I would substitute the D.G.C.A. The period of training, however, should not be less than two years.

171. *Para.* 360.—The I.C.A.O. rules in regard to airline transport pilots should be fully implemented by the D.G.C.A. and proposals can be worked out by Chief Pilots of the two Corporations, the Chief Pilot of the C.A.T.C. and the Chief Inspector of Flying of the Civil Aviation Department. The Civil Air Board has not the competence to do the work proposed.

172. *Para.* 361.—The Civil Air Board should have nothing to do with the selection, which can be done by the U.P.S.C. by holding a qualifying examination of candidates possessing the Intermediate degree. Thereafter the U.P.S.C. should have an interview in which a representative of the Corporations and a representative of the D.G.C.A. should be associated. Then, of course, there will be the medical test. If subsequently a trainee is found unsuitable, the decision to terminate his services should be taken by a Board consisting of the Chief Pilot of the C.A.T.C., the Chief pilot of one of the two Corporations and the Chief Inspector of Flying of the Civil Aviation Department.

173. *Paras.* 362 *to* 364.—I agree.

174. *Para.* 365.—A Board consisting of the Chief Pilot of the C.A.T.C., the Chief Pilot of one of the two Corporations and the Chief Flying Inspector of the Civil Aviation Department should make the selection.

175. *Para.* 366.—I would emphasise the proviso that the holder of "B" licence should be properly qualified for that purpose and it means he must have passed creditably the Dakota conversion course, the P.G.T. course and the Instrument rating course.

176. *Para.* 367.—I agree but quality must not be sacrificed in the Air Force.

117. *Para.* 368.—I have no objection to free training if Government would like to incur the expense.

178. *Para.* 369.—I would again emphasise the proviso that the "B" licensees should fulfil other conditions of recruitment of the Air Traffic Control Officers.

179. *Paras.* 370 *and* 371.—I am totally opposed to the creation of the Civil Air Board and its composition, as previously discussed. In my opinion, it will be incompetent to discharge the functions noted, some of which are vaguely expressed.

180. *Para.* 372.—In my opinion, the scales of pay must be laid down.

181. *Para.* 373 *and* 374.—The D.G.C.A. must have the right to approve of Check Pilots as well as conversion course instructors.

182. *Para.* 375.—The assistance asked for will be of benefit only to a few persons, which will not promote the larger cause of flying, as similar conditions as exist in England for the functioning of the Royal Aero Club do not exist in India. The Committee itself has not recommended the Aero Club of India any role to play.

183. *Para.* 376.—At the beginning one of the instructors and engineers will have to go abroad to learn regarding Helicopter flying and maintenance and thereafter they should be posted at the C.A.T.C. to train others.

184. *Para.* 377.—As crop dusting, aerial spraying, etc., need special and difficult techniques, the C.A.T.C. will be the suitable place for imparting that instruction. Incidentally, it will be easier to concentrate equipment and instructional staff in one place than disperse it in 10 flying clubs.

185. *Para.* 378.—I agree that the Air Force should train for aerial survey work.

186. *Para.* 379.—In my opinion, gliding clubs should be located in the Universities to train the youth and there should be a central training school for Instructors at the C.A.T.C. Members of the staff of the Universities should be trained there and then train up the boys in their Universities. This will reduce cost. Manufacture of gliders in India will also reduce cost. All the staff recommended by my colleagues is not required and the total cost, capital and recurring, should not be more than half of what has been calculated by them.

187. *Para.* 380.—I agree.

Yours faithfully,
T. P. BHALLA,
Member of the Committee on Training of Civil Air Pilots, and Inspector General of Police, Uttar Pradesh.

Encls: Statements A and B.

STATEMENT "A"

Statement showing savings in recurring expenditure on the abolition of the flying school at the CAIRC based on actuals of 1951-52.

Details	No. of posts to be reduced	Pay	Allowances	Total
I. *Pay of Officers.*—		Rs.	Rs.	Rs
Deputy Chief Engineer	1	8,160	1,020	9,180
Licensed Engineers	2	10,560	1,680	12,240
II. *Pay of Establishment*—				
Senior Aircraft Mechanics	4	12,000	3,120	15,120
Aircraft Mechanics	6	10,800	3,960	14,760
Fitters	4	3,600	2,400	6,000
Asstt. Aircraft Mechs.	10	3,600	4,800	8,400
III. *Maintenance, Repairs and Operation of training equipment* :—				
(*a*) *Direct Operating cost*—				
Total cost debited to flying school		92,900		
Less expenditure on calibration		28,500		
Less Expenditure on A.P.Is. training		1,350	29,350	63,050
(*b*) *Spares*—				
2 Ansons at $\frac{28,000}{6}$ each				9,330
8 Chipmunks at $\frac{35,000}{11}$ each				25,450
IV. General Administration—				
Maintenance of buildings in 1951-52		Rs.	95,452	
Less rental realised from above staff			4,800	
		Rs.	90,652	
(Maintenance will continue to be done)				Nil
Total			Rs.	1,63,530
Less fees recovered from trainees during 1951-52			Rs.	71,669
		Net Saving	Rs.	91,861
		Or say	Rs.	91,900

GIPD—SS—35 M of Com.—8-9-53—1000